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IX

THE GALAPAGOAN LIZARDS OF THE GENUS TROPIDURUS; WITH NOTES ON THE IGUANAS OF THE GENERA CONOLOPHUS AND AMBLYRHYNCHUS

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INTRODUCTION

Prefatory Remarks

In two previous papers by the senior author the Snakes and the Geckos of the Galapagos Archipelago have been studied, and an attempt has been made to trace the history of these islands from the evidence afforded by these two groups of their reptilian inhabitants. It is now proposed to publish the results of a similar investigation of the lizards of the genus *Tropidurus*—an investigation undertaken for the purpose of confirming or disproving the conclusions reached through study of the Snakes and Geckos.

The material upon which this paper is based consists of more than two thousand specimens from twenty-four islands. The study of this collection has been an enormous task. Many of the differences between species are differences in the size and number of the scales. To show as clearly as possible all differentiation along these lines, the scales around the middle of the body, along the back, and along the belly have been counted in fifteen hundred specimens, and the counts have been charted island by island. This has involved the counting of more than a quarter of a million scales. These counts have all been made by Mr. Slevin in the following manner: 1. Scale-rows—The number of rows of scales around the body counted about midway between the fore and the hind limbs. 2. Crest—The number of scales in the crest-row from the point where the crest begins back to a line drawn across the back at the level of the anterior surfaces of the thighs, the thighs being held at right angles to the main axis of the body. 3. Belly—The scales in a row along the middle of the belly are counted from a line joining the anterior surfaces of the arms when the fore limbs are held at right angles to the main axis of the body, back to the anus. All measurements given are in millimeters. All specimens are in the collection of the Academy, and the numbers attached to them refer to the catalogue of specimens of the Department of Herpetology. Field notes and descriptions of the coloration of living specimens are in part by Mr. Slevin, and in part are quoted from Heller's paper on the reptiles of the archipelago. While the specimens are recorded as males and females, this determination of sex

rests only upon external characters. The internal organs have not been examined.

The Galapagos lizards of the genus *Tropidurus* have been much better known than any of the other reptiles of the archipelago. This is due chiefly to the studies of the late Dr. George Baur, from whose writings we shall quote.

Previous Collections and Studies

The presence of lizards in these islands probably was recorded first by Amasa Delano in *A Narrative of Voyages and Travels* published in Boston in 1817. He mentioned the land "guana," the sea "guana," and lizards.

> The largest kind of lizards found here resembles the land guana in everything except size; they being only a little more than half the length. Their color and coarse appearance are the same with exception of a bright vermilion red throat; which makes it appear as if bloody. There are to be found there also two smaller kinds of lizards. The smallest is not much larger than a man's finger. The size of the other kind is between the two. There is no particular difference in the shape of the three kinds, but the color of the two latter is gray.

Charles Darwin, in 1835, during the voyage of the "Beagle," collected the specimens upon which Thomas Bell, in 1843, based the first scientific description of a Galapagos *Tropidurus*. These specimens "were taken in Chatham Island and in Charles Island." They were named by Bell *Leiocephalus Grayii*.

In 1851, Duméril recorded, under the name *Holotropis Grayii*, some Galapagos specimens without definite locality labels, which were collected during the visit of the "Vénus."

Dr. Kinberg, during the voyage of the "Eugenie," secured lizards on Chatham, Charles and Albemarle islands. Dr. Peters, in 1871, described the Chatham specimen as a new species, *Craniopeltis bivittata;* and recorded the Charles and Albemarle examples under the name *Craniopeltis Grayii*.

In 1872, Dr. Steindachner visited the Galapagos in connection with Louis Agassiz and the "Hassler" expedition. He observed these lizards on Albemarle, Indefatigable, James, and Jervis islands. Four years later Dr. Steindachner published an account of the lizards and snakes of the Galapagos islands. Dr. Habel, in 1868, had collected some lizards on "Indefatigable [?] and Bindloe" islands. These were described by Dr. Steindachner, as *Tropidurus (Craniopeltis) pacificus* and

T. pacificus (var. *Habelii*). *Craniopeltis bivittata* Peters was regarded as a synonym of *Tropidurus (Craniopeltis) Grayii,* which was said to occur on Chatham, Charles, Albemarle, James, Indefatigable, and Jervis islands.

In 1877, Dr. Günther recorded the specimens secured by Cookson, during the visit of the "Peterel." The Albemarle lizards were regarded as *Liocephalus Grayii* (Bell), while those from Abingdon were referred both to this species and to *L. pacificus* (Steind.). Steindachner was followed in regarding *Craniopeltis bivittata* Peters as a synonym of *L. Grayii.*

Boulenger in his Catalogue of Lizards, 1885, accepted the views of Günther, but placed these lizards in the genus *Tropidurus.*

In reporting upon the collections made by the "Albatross" in 1887–88, Professor Cope, in 1889, recorded *Tropidurus grayi* from James, Gardner, Hood, Indefatigable, Albemarle, and Duncan islands. The Duncan specimens were mentioned as a variety with a dark lateral band not very distinct. Specimens from Abingdon were referred to *Tropidurus pacificus,* while those from Chatham were described as a new species, *Tropidurus lemniscatus.*

The following year, Dr. George Baur studied these specimens collected by the "Albatross," one hundred and twenty-eight in number, and published his conclusion that nearly every island has its peculiar variety or species of *Tropidurus,* and no island has more than one kind. He described five new species, and stated the distribution of *Tropidurus,* in the archipelago to be as follows:

Tropidurus	*Grayii* Bell	Charles Island
"	*lemniscatus* Cope	Chatham Island
"	*pacificus* Steindachner	Bindloe Island
"	*Delanonis* Baur	Hood and Gardner islands
"	*Albemarlensis* Baur	Albemarle Island
"	*indefatigabilis* Baur	Indefatigable and James islands
"	*Duncanensis* Baur	Duncan Island
"	*Abingdonensis* Baur	Abingdon Island

The name *Tropidurus Delanonis* was changed in the reprints to *T. Hoodensis.*

Dr. Boulenger reviewed the subject in 1891, and concluded that *Craniopeltis bivitta* Peters differed from *Leiocephalus Grayii* Bell; that *Tropidurus lemniscatus* Cope is a synonym of *Craniopeltis bivittata* Peters; that *T. habelii* and *T. abingdonii*

are synonyms of *T. pacificus;* and that Baur's other new species were not worthy of separation from *T. grayii.*

During 1891, Dr. Baur visited the Galapagos Archipelago, and made large collections. His final study of the genus *Tropidurus* was published in 1892 in the *Festschrift für Leuckart.* In this article Dr. Baur recognizes the following species of *Tropidurus* from the Galapagos Islands:

1.	*Tropidurus Grayii* Bell	Charles Island
2.	" *Barringtonensis* new species	Barrington Island
3.	" *indefatigabilis* Baur	Indefatigable Island
4.	" *Jacobii* new species	James and Jervis islands
5.	" *Albemarlensis* Baur	Albemarle Island
6.	" *Delanonis* Baur	Hood and Gardner islands
7.	" *Duncanensis* Baur	Duncan Island
8.	" *pacificus* Steindachner	Abingdon Island
9.	" *Habelii* Steindachner	Bindloe Island
10.	" *bivittatus* Peters	Chatham Island

The Hopkins-Stanford Galapagos Expedition secured large series of these lizards, which were studied by Edmund Heller. His paper, published in 1903, is the most recent review of the subject. Heller had no specimens from Charles Island. He recognized eight forms, as follows:

T. grayi grayi Bell	Charles, Indefatigable, James, Jervis, and Albemarle islands
T. grayi magnus new subspecies	Narborough Island
T. grayi barringtonensis (Baur)	Barrington Island
T. duncanensis Baur	Duncan Island
T delanonis Baur	Hood Island and Gardner-near-Hood
T. bivittatus (Peters)	Chatham Island
T. habeli (Steindachner)	Bindloe Island
T. pacificus Steindachner	Abingdon Island

List of Names Proposed

The following is believed to be a complete list of the names proposed for Galapagos lizards of the genus *Tropidurus,* with their dates and type-localities:

1843 *T. grayii* (Bell)	Charles Island
1871 *T. bivittatus* (Peters)	Chatham Island
1876 *T. pacificus* Steindachner	Abingdon Island
1876 *T. habelii* (Steindachner)	Bindloe Island
1889 *T. lemniscatus* Cope	Chatham Island
1890 *T. delanonis* Baur	Hood Island
1890 *T. albemarlensis* Baur	Tagus Cove, Albemarle Island

1890 *T. indefatigabilis* Baur	Indefatigable Island
1890 *T. duncanensis* Baur	Duncan Island
1890 *T. abingdonensis* Baur	Abingdon Island
1890 *T. hoodensis* Baur	Hood Island
1892 *T. barringtonensis* Baur	Barrington Island
1892 *T. jacobii* Baur	James Island
1903 *T. grayi magnus* Heller	Narborough Island

T. hoodensis is merely a substitute name. *T. lemniscatus* is a synonym of *T. bivittatus,* as *T. abingdonensis* is of *T. pacificus.* Thus we have left eleven names, which have been given to the lizards of as many different islands. How many of these are entitled to recognition?

Relations and List of Kinds Recognized

There can be no doubt that Baur was right in his belief that only one kind of *Tropidurus* occurs on any one island. It is true also that many of the islands have distinct and peculiar forms of *Tropidurus.* But when we come to study these lizards we find that differentiation has proceeded much farther upon some islands than upon others. The most distinct of all are the Abingdon, Bindloe, Duncan, and Chatham lizards. There can be no doubt that they should be regarded as four species. The next in point of distinctness is the Hood Island form. Then comes the Charles Island lizard, which in certain characters resembles that of Hood, while in others it is more like that of Barrington. The last mentioned (Barrington form) stands next as a sort of connecting link between the lizards of Hood and Charles islands on the one hand, and its still closer relatives of the central and western islands, as yet unmentioned, on the other. The lizards of these three islands (Hood, Charles and Barrington) certainly are distinct, but there easily may be some difference of opinion as to whether they should rank as full species or as subspecies. The *Tropiduri* of Indefatigable, James, Jervis, Albemarle, and Narborough islands are most closely related. Very large series enable us to show that the lizards of these islands are not absolutely identical, but differentiation is as yet so slight that it seems best to use but one name for all.

We, therefore, shall describe the *Tropiduri* of the Galapagos Islands under the following names:

1. *T. pacificus*	Abingdon Island
2. *T. duncanensis*	Duncan Island
3. *T. habelii*	Bindloe Island
4. *T. bivittatus*	Chatham Island
5. *T. delanonis*	Hood and Gardner islands
6. *T. grayii*	Charles, Gardner, Champion, and Enderby islands
7. *T. albemarlensis barringtonensis*	Barrington Island
8. *T. albemarlensis*	Indefatigable, S. Seymour, N. Seymour, Daphne, James, Jervis, Cowley, Brattle, Albemarle, and Narborough islands

Origin of the Galapagos Lizards of the Genus Tropidurus

The genus *Tropidurus,* as at present understood, is confined to the Galapagos Archipelago and South America. It has been reported from Paraguay, Argentine, Chile, Bolivia, Peru, Equador, Brazil, Dutch Guiana, and Venezuela. The closely allied genus *Leiocephalus* occurs in Bolivia, Peru, Equador, Colombia, Brazil, the Greater and Lesser Antilles and the Bahamas. It is evident, therefore, that the affinities of these Galapagos lizards are South American and West Indian. Either the lizards of the Galapagos have been derived from South America, or those of both localities have common ancestors.

In the Galapagos Archipelago, *Tropiduri* occur on almost every island, islet, and rock. The notable exceptions are Culpepper, Wenman, and Tower islands. They have been found on Abingdon, Bindloe, Chatham, Hood, Gardner-near-Hood, Charles, Enderby, Champion, Gardner-near-Charles, Barrington, Indefatigable, North and South Seymour, Daphne, James, Bartholomew, Jervis, Duncan, Cowley, Brattle, Albemarle, and Narborough islands.

The fact that these lizards occur on nearly every island of the archipelago can be explained only in one of two ways. These *Tropiduri* must have reached these islands either by land or by water. Either they have been carried to each island, islet, and rock by some such means of dispersal as floating driftwood driven by the winds and currents, or else they were already on each island at the time when it became separated from a larger land-mass. The former view has been held by those who believe that these islands never have been connected, but have been independently thrust above the surface of the ocean. The latter explanation finds favor with

those who believe that these islands all formerly were connected, and formed part of a single large island which, sometime, must have been connected with continental America.

We can see but little to commend the former view, for the means of dispersal from continent to island or from island to island over the intervening water must, in the nature of things, be but accidental or occasional, and must seem quite inadequate to account for the wide distribution of these lizards in the archipelago. Again, Wenman and Culpepper islands lie directly in the path of the currents from the other islands, yet both are without *Tropiduri*. Furthermore, were such means of dispersal sufficient to bring about the wide distribution of these reptiles, we must believe that the interchange of lizards between the islands would result either in preventing differentiation on the various islands, or in the transportation of differentiated races from island to island. Thus we should expect to find either one kind of lizard on all the islands, or a tendency toward the distribution of all kinds of lizards to each island. But many of the islands have each its peculiar kind of *Tropidurus,* and no island has more than one kind. Even in the case of Duncan Island, almost surrounded as it is by other close-lying islands, the evidence all points to complete isolation during a long period of time.

Origin and History of the Galapagos Islands

We, therefore, adopt the other theory: that there formerly was a single large island inhabited by one species of *Tropidurus;* that through partial and gradual submersion this island became divided into the many islands of the present archipelago; that each island after its separation was occupied by those animals which inhabited it before; and that the present fauna of each island is directly descended from its original inhabitants.

It is probable that the separation of the various islands occurred at different times rather than simultaneously.

If it be admitted that the degree of differentiation in a single group, under conditions such as obtain in these islands, may be regarded as an index to the period of isolation, we may proceed to sketch the history of the archipelago as indicated by the lizards of this genus.

The *Tropiduri* of Abingdon, Bindloe, Duncan, and Chatham islands show the greatest differentiation. Accordingly, we may believe that these islands early became separated from each other and from the remaining portions of the group, and have maintained independent existence ever since.

The next lizard, in point of distinctness, is that of Hood Island. Hence it would seem probable that this southern island was the one next separated. The closest relationship of this *Tropidurus* seems to be with that of Charles Island. This relationship is not nearly so striking as in the case of the snakes and geckos of these two islands, but it nevertheless may be interpreted as indicating some connection between these islands in the past, probably subsequent to their separation from the rest of the archipelago.

The *Tropidurus* of Gardner-near-Hood appears to be identical with that of the main island, so that the separation of this islet from Hood doubtless is of recent date.

The Charles Island lizard is, in a sense, intermediate between those of Hood and Barrington islands. This apparent relationship with the Barrington form inclines one to believe that the former connection of the Hood-Charles island with the remainder of the archipelago may have been by way of Barrington.

The lizards of Enderby, Champion, and Gardner-near-Charles do not differ from those of the larger island. The separation of these islets from Charles Island, therefore, may be regarded as having occurred much later than the separation of Charles from Hood.

Barrington Island probably was the next to assume an independent existence.

The lizards of the remaining islands—Indefatigable, the Seymours, Daphne, James, Jervis, Cowley, Brattle, Albemarle and Narborough—show so little differentiation that we are led to the conclusion that all of these islands were connected, and formed a single large island for some time after the separation of Barrington. It is probable that a large bay extended from the south toward the center of this island, completely surrounding Duncan Island with water.

The history of this large central island cannot be clearly traced farther from evidence afforded by the *Tropiduri.*

Nevertheless, the examination of very large series discloses certain average differences, and certain resemblances, which lead us to believe that, during a considerable period of time after this large island was broken up, Narborough Island remained connected with Albemarle, as did James with Jervis, and Indefatigable with the Seymours. Brattle and Cowley islands doubtless were joined to Albemarle, and Bartholomew to James. Curiously enough, the *Tropiduri* of Daphne Island seem to resemble those of James Island more closely than they do those of the Seymours and Indefatigable, although the latter lie much nearer.

Thus we find that the evidence gathered from a study of the *Tropiduri* points to the gradual depression and partial submersion of a former Galapagos Land, resulting in its division into many smaller islands and islets. The story agrees in almost every detail with that which we have previously gathered from an investigation of the snakes and geckos. The chief points of difference are that the snake of Barrington is less differentiated than the lizard, and the *Tropiduri* afford less evidence than do the snakes of a former division into an Albemarle–Narborough Island and a James–Jervis–Indefatigable Island.

SYSTEMATIC ACCOUNT

KEY TO THE GALAPAGOS TROPIDURI

a.—Sides of neck scaly, with fewer folds.
b.—Scales around body not more than 65; males longitudinally striped. Chatham.
T. bivittatus.—p.
b.²—Scales around body more than 65; no longitudinal stripes. Bindloe.
T. habelii.—p.
a.²—Sides of neck granular between folds; folds more numerous.
bb.—Hind legs of males with definite blackish spots; interparietal plate seldom much broader than long; scales around body not more than 80.
c.—36 to 48 scales in crest; smaller; little red in coloring. Charles.
T. grayii.—p.
c.²—50 to 61 scales in crest; larger; usually much red. Hood.
T. delanonis.—p.
bb.—Hind legs without definite blackish spots; interparietal usually much broader than long; or scales around body more than 80.
cc.—Scales around body more than 75.
d.—Head above speckled with lighter spots; no red in general coloration; scales around body 85 to 101. Abingdon.

T. pacificus.—p

d.²—Head not speckled above; more or less suffused with red; scales around body 76 to 92. Duncan.

T. duncanensis.—p.

cc.²—Scales around body fewer than 76.

dd.—Scales smaller, 61 to 76 around body. Barrington.

T. albemarlensis barringtonensis.—p.

dd.²—Scales larger, 50 to 69 around body. Indefatigable, James, Jervis, Albemarle, Narborough, etc.

T. albemarlensis.—p.

Tropidurus pacificus Steindachner

Abingdon Island Lizard

1876, *Tropidurus* (*Craniopeltis*) *pacificus*, Steindachner, Festschrift Zool-Bot. Ges. Wien, 1876, p. 313, pl. II, fig. 3 (type locality **Indefatigable** [?] and **Bindloe Islands, Galapagos Archipelago**).

1877, *Liocephalus pacificus*, Günther, Proc. Zool. Soc. Lond., 1877, p. 67 (part).

1885, *Tropidurus pacificus*, Boulenger, Cat. Lizards Brit. Mus., II, 1885, p. 173; Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 147; Boulenger, Ann. and Mag. Nat. Hist., (6), VII, p. 501 (part); Baur, Festschrift für Leuckart, 1892, p. 270; Heller, Proc. Washington Acad. Sci., V. 1903, p. 83.

1890. *Tropidurus abingdonii*, Baur, Biol. Centralbl., X, 1890, p. 479 (type locality Abingdon Island, Galapagos).

Diagnosis.—Sides of neck with numerous folds; skin between neck-folds granular; hind legs without definite blackish spots; interparietal usually much broader than long; 83 to 101 scales around middle of body; top of head mottled or speckled with light color; a middorsal light streak in males.

Type.—Vienna Museum. Collected by Dr. Habel on "**Indefatigable** [?] and **Bindloe Islands,**" **Galapagos Archipelago.** Specimens with the high scale counts given by Dr. Steindachner, however, could only have come from Abingdon.

Distribution.—This species occurs only on Abingdon Island, Galapagos Archipelago.

Material.—The Academy's collection contains about one hundred and fifty specimens, of which fifty-seven males and sixty-five females have been included in the scale counts.

Description of adult male, No. 12587.—The head is covered above with smooth scales; interparietal largest, broader than long; five or six large supraoculars; superciliaries imbricate; five superior and five inferior labials to below middle of eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of five or six long, narrow scales. Side of neck between ear-opening and fore limb with numerous folds, covered with granular scales. A strong antehumeral, but no complete gular, fold. A well-developed medium dorsal crest begins half the length of the interparietal behind this plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller,

keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are a little smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ears. The scales on the chest are largest, smooth, and imbricate. The limbs are provided above with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with smooth sub-granular scales, between which smaller granules may often be seen. The lateral caudals are strongly keeled and mucronate, while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The general coloration in alcohol is grayish brown, spotted with black on the fore limbs, back, and sides of neck and body, temples, chin, throat and chest. These black markings tend to form vertical bars on the neck and anterior dorsal region. There is an antehumeral black blotch, and the posterior gular region is mostly black. The head, neck, body, limbs, and tail are speckled with light bluish gray, and a band of the same color runs along the median dorsal region. The hind limbs are not distinctly spotted with black.

Length to anus ..... mm.	100
Length of tail	143+
Snout to ear	22
Width of head	17
Fore limb	45
Hind limb	69
Base of fifth to end of fourth toe	25
Height of crest on nape	1.2
Height of crest on midbody	1.2
Height of crest on tail	2.3

Coloration in life of adult male.—Dorsum grayish brown; the back crossed by several series of transverse black bars, most distinct anteriorly, interrupted medially and on sides. Dorsal crest and the scales at its base light greenish gray; dorsum, tail, and limbs spotted with same. Top of head reddish brown, nape olive brown. Fore limbs brownish, barred above like the back. Tail becoming dusky toward tip, without lighter spots. Chin and sides of mandible pinkish; throat deep brown; chest light brown, dark-spotted, the scales with light margins; fore limbs below like the chest, slightly more buffy. Belly, hind limbs, and tail inferiorly light olive gray. Sides of head from snout to ear-opening red, shading into seal brown on the neck. A black antehumeral spot. Sides of body reddish, black-spotted.

Coloration in life of adult female.—Whole, head, nape, shoulders, back anteriorly, and sides of body brick red; fore limbs reddish, becoming olive gray distally. Dorsal crest and median line of back greenish gray; dorsum from middle of back, tail, and hind limbs above olive brown, spotted with the color of the dorsal crest. Belly, tail, and hind limbs inferiorly light olive gray. Breast and sides of body light brick red; throat dark red; lower jaw light like the breast. Fore limbs below

brick red proximally, lighter grayish distally. Antehumeral spot black.

Variation.—There is much variation in the size, number and arrangement of the head scales. The characteristic coloration in the males is fairly constant. Females show few or no black markings, though traces of them may often be made out as spots of brown darker than the ground color. The belly usually is slaty or bluish gray, sometimes yellowish. Many females have the head and sides of neck suffused with brick red. The number of scales around the middle of the body varies from 83 to 101; in the crest from 46 to 61; and along the belly from 70 to 85. Variation in these respects will be found in the following:

TABLE OF SCALE COUNTS—ABINGDON ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
12475	♂	88	54	81	12476	♀	86	47	80
12477	♂	86	51	78	12478	♀	88	59	78
12479	♂	89	..	79	12481	♀	87	53	84
12480	♂	86	58	82	12484	♀	87	55	83
12482	♂	88	57	83	12511	♀	92	54	79
12483	♂	97	55	81	12512	♀	90	56	78
12485	♂	86	56	85	12513	♀	90	58	79
12486	♂	93	57	79	12514	♀	90	48	74
12487	♂	85	..	77	12515	♀	88	47	70
12488	♂	92	55	83	12516	♀	89	59	80
12489	♂	86	54	79	12517	♀	88	56	81
12490	♂	90	55	83	12518	♀	97	60	83
12491	♂	88	56	81	12519	♀	95	61	82
12492	♂	96	54	80	12520	♀	87	60	79
12493	♂	93	52	77	12521	♀	88	53	74
12494	♂	90	..	74	12522	♀	91	58	78
12495	♂	87	57	83	12523	♀	88	57	82
12496	♂	90	..	83	12524	♀	90	61	76
12497	♂	88	53	79	12525	♀	88	58	75
12498	♂	91	57	76	12526	♀	88	55	75
12500	♂	93	54	83	12527	♀	88	53	74
12501	♂	91	51	77	12528	♀	97	60	83
12502	♂	88	58	78	12529	♀	97	61	80
12503	♂	91	..	79	12530	♀	96	59	77
12504	♂	92	51	82	12531	♀	93	52	75
12505	♂	96	46	83	12532	♀	86	56	79
12506	♂	95	49	81	12533	♀	89	60	83
12507	♂	93	51	80	12534	♀	94	57	77
12508	♂	97	55	79	12536	♀	92	58	78
12509	♂	91	52	80	12537	♀	86	54	82
12585	♂	89	..	85	12538	♀	94	59	79
12586	♂	91	54	79	12540	♀	93	59	82
12587	♂	90	56	85	12541	♀	91	60	82
12588	♂	89	56	85	12542	♀	90	59	78
12589	♂	93	51	79	12543	♀	91	53	77
12590	♂	85	..	77	12544	♀	86	54	71
12591	♂	88	58	83	12545	♀	87	54	82

TABLE OF SCALE COUNTS—ABINGDON ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
12593	♂	91	54	85	12594	♀	88	52	80
12598	♂	91	54	82	12596	♀	86	..	74
12600	♂	84	48	78	12597	♀	90	52	74
12604	♂	87	52	82	12599	♀	84	53	79
12605	♂	87	58	81	12603	♀	94	54	78
12606	♂	90	53	83	12609	♀	92	55	80
12608	♂	90	55	83	12611	♀	92	51	84
12610	♂	89	54	83	12615	♀	84	52	79
12612	♂	88	55	83	12617	♀	88	55	80
12613	♂	92	53	83	12618	♀	83	..	76
12614	♂	90	55	83	12619	♀	90	56	80
12616	♂	91	58	83	12620	♀	91	..	80
12622	♂	90	57	79	12621	♀	88	57	77
12626	♂	86	53	81	12623	♀	86	55	77
12627	♂	88	54	80	12624	♀	89	58	76
12628	♂	90	58	..	12632	♀	85	56	74
12629	♂	90	..	78	12633	♀	83	55	76
12630	♂	87	55	76	12634	♀	87	56	80
12631	♂	91	55	79	12636	♀	92	56	78
12640	♂	85	..	75	12637	♀	95	56	82
					12638	♀	90	56	77
					12644	♀	89	51	74
					12645	♀	91	56	79
					12646	♀	84	55	76
					12647	♀	89	54	78
					12649	♀	90	56	80
					12652	♀	93	53	84
					12653	♀	88	58	77

Habits.—Abingdon Island, Sept. 18 and 22, 1906. Went ashore on the south side of the island. Landed on a good sand beach and worked inland about a mile. About half way up the mountain a distinct green zone is plainly visible, while the lower part is brown lava, not very rough, and covered sparingly with cactus and trees. The lizards are abundant in this lower portion, especially near the beach, which swarms with seal-flies. Several stomachs examined contained these flies and the leaves of a succulent plant which grows on the beach. Lizards are most abundant near the beach, but their range extends up to 1500 feet, where they are rather scarce.

"The food is chiefly vegetable, varied with insects, etc. Stomachs examined contained berries, hard seeds, and blossoms, with an occasional grasshopper, beetle or other insect. The seed capsules and berries are eaten for the fleshy part surrounding the seeds, which is the only part digested, the seeds passing unchanged through the alimentary canal." (Heller.)

General remarks.—The Abingdon Island *Tropidurus* is a very distinct species. It has smaller scales than any other species found in the archipelago. In scale characters it most resembles the species of Duncan Island, but has rather smaller scales and a very different coloration. The peculiar light speckling of the upper surfaces, and particularly of the head, seems to be quite characteristic, and is shown by both sexes.

Tropidurus duncanensis Baur

Duncan Island Lizard

1889, *Tropidurus grayi,* Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 145 (part); Boulenger, Ann. and Mag. Nat. Hist., (6), VII, 1891, p. 502 (part).

1890, *Tropidurus duncanensis,* Baur, Biol. Centralbl., X, 1890, p. 479 (type locality **Duncan Island Galapagos Archipelago**); Baur, Festschrift für Leuckart, 1892, p. 270; Heller, Proc. Washington Acad. Sci., V, 1903, p. 77.

Diagnosis.—Sides of neck with numerous folds; skin between neck folds granular; hind legs without definite blackish spots; interparietal usually much broader than long; 76 to 92 scales around middle of body; top of head unicolor; no middorsal streak; often much red in coloration.

Types.—U. S. National Museum Nos. 14941 to 14944. Collected by the U. S. Fish Commission Steamer "Albatross," on **Duncan Island, Galapagos Archipelago,** between April 4 and 16, 1888.

Distribution.—Duncan Island, Galapagos Archipelago.

Material.—The Academy collection contains about one hundred specimens, of which thirty-nine males and forty-eight females have been included in the scale counts.

Description of adult male No. 12203.—The head is covered above with smooth scales; interparietal largest, broader than long; four or five superior and as many inferior labials, to below middle of eye; rostral very broad and low; symphyseal much narrower, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of somewhat smaller plates. Ear-opening large, with an anterior denticulation of six or eight long, slender scales. Side of neck between ear-opening and fore limb with numerous folds, covered with granular scales. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins four scales behind the interparietal, and runs continuously to and along the tail, being highest on the proximal third of the tail, and absent toward its tip. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are much smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ear. The scales on the chest are about as large as the dorsals, smooth and imbricate. The limbs are provided above

with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with imbricate scales, a few of which are keeled. The lateral caudals are strongly keeled and mucronate, while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The general coloration in alcohol is grayish brown, with very small scattered black spots on the body, neck, and fore limbs. Some larger black spots on chest and throat, the center of which is dark blackish brown. No vertical dark blotches or distinct rounded spots or light medium band on back. There is a black antehumeral blotch. The top and sides of the head are dark olive brown, unicolor. The hind limbs and tail are lighter olive brown, unspotted. The chest and center of belly are grayish white. The throat and sides of belly, head, and body are suffused with red.

Length to anus ..... mm.	95
Length of tail	132
Snout to ear	19
Width of head	15
Fore limb	37
Hind limb	64
Base of fifth to end of fourth toe	25
Height of crest on nape	1.1
Height of crest on midbody	1
Height of crest on tail	2

Coloration in life of adult male.—Above olive brown, black-spotted except the head; tail more brownish with few dark spots; hind limbs and tail light blue, gray-spotted; fore limbs dark-spotted like the back. Sides of head and body, from snout to tip of tail, brick red, finely black-spotted on sides and along the belly, where the red is brightest; a black antehumeral spot. Throat black; breast, mandible, and fore limbs reddish, black-spotted; chin, belly, hind limbs, and tail inferiorly red.

Coloration in life of adult female.—Above olive brown. Sides of head and body from snout to tip of tail brick red, darkest dorsally where the red extends high up and encroaches on the dorsum, brightest along the belly; a black antehumeral spot. Below red from mandible to tip of tail, darkest anteriorly on lower jaw, brightest on tail; breast and belly lighter, breast dark-spotted.

Variation.—Females have more of the red suffusion than the males, and show fewer black spots on the sides and back, and less black on the throat. In some females the red covers not only the lower surfaces of the belly, sides, and tail, but extends up on the back.

The head-scales are subject to considerable variation. The interoccipital is always very large, though it sometimes is only a little wider than long. There seems to be but little variation

in the keeling and arrangement of the body-scales. The range in scale counts is given in the following table:

TABLE OF SCALE COUNTS—Duncan Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10561	♂	76	55	84	12176	♀	76	53	82
10562	♂	89	57	86	12177	♀	84	52	91
10565	♂	82	53	..	12178	♀	82	55	91
10566	♂	84	50	86	12183	♀	84	58	92
12172	♂	86	52	87	12185	♀	91	..	89
12173	♂	81	50	80	12186	♀	89	55	90
12174	♂	91	59	88	12187	♀	80	53	82
12175	♂	82	57	86	12188	♀	85	59	86
12179	♂	92	49	88	12189	♀	80	55	82
12181	♂	85	51	86	12193	♀	80	56	85
12182	♂	82	53	87	12194	♀	84	54	90
12184	♂	92	53	84	12195	♀	82	55	87
12188	♂	79	51	80	12197	♀	80	56	81
12190	♂	76	54	87	12198	♀	79	52	83
12191	♂	81	55	89	12201	♀	82	52	85
12192	♂	86	56	88	12204	♀	82	52	86
12196	♂	86	53	90	12208	♀	87	57	90
12199	♂	81	56	87	12209	♀	79	56	87
12200	♂	84	53	87	12210	♀	84	..	88
12202	♂	80	52	85	12212	♀	82	52	82
12203	♂	86	52	84	12218	♀	81	54	83
12205	♂	88	52	91	12219	♀	81	51	81
12206	♂	87	53	88	12220	♀	80	..	..
12207	♂	83	53	84	12225	♀	87	50	84
12217	♂	80	47	84	12226	♀	82	54	87
12221	♂	79	53	86	12227	♀	83	51	80
12222	♂	85	54	84	12228	♀	82	50	81
12223	♂	83	54	86	12229	♀	88	50	67
12224	♂	82	51	87	12230	♀	80	52	86
12235	♂	81	47	82	12231	♀	85	57	84
12239	♂	78	45	80	12232	♀	79	51	79
12241	♂	83	54	85	12233	♀	82	54	86
12243	♂	83	..	86	12234	♀	80	51	78
12245	♂	89	53	80	12236	♀	81	53	85
12248	♂	81	51	83	12237	♀	80	50	84
12251	♂	84	52	83	12238	♀	80	50	81
12254	♂	82	52	86	12240	♀	79	54	87
12257	♂	84	44	82	12242	♀	81	54	86
12258	♂	83	46	82	12244	♀	81	51	80
					12246	♀	81	52	88
					12247	♀	80	54	87
					12249	♀	76	51	80
					12250	♀	80	53	79
					12252	♀	81	53	78
					12253	♀	79	54	80
					12256	♀	77	52	82
					12259	♀	84	58	84
					12260	♀	80	53	88

Habits.—Duncan Island, Dec. 11 to 16, 1905. Lizards were fairly common in the brushy portion. I have not been in the

crater as yet, but Mr. Beck says they were not more abundant there than elsewhere. Aug. 14, 1906. Went ashore after lizards. I found them by no means abundant—if anything rather scarce. I collected on the N.E. slope of the island to about 800 feet. The *Tropiduri* are very wild, and keep close under cover. They generally were found under the thorn bushes or on piles of old lava, under which they get on one's approach. Secured about thirty during the day. Aug. 15. Went down into the large crater at the north end of the island. The floor of the crater is 450 feet above sea-level and is composed of red loam covered with large thorn bushes and old stumps. The vegetation is thickest around the edges, while the central portion is almost bare. Lizards were the only reptiles seen, and were more plentiful there than elsewhere, but by no means abundant. The numerous hawks make them wilder than those of any other island where we have collected, except Charles Island. Some of the males have a rich salmon coloring, but I find little or no difference between those taken in the crater and those taken outside, although the color of their surroundings in the crater is quite red. In several stomachs examined I found portions of beetle wings and grasshoppers. The latter seem to form one of the principal articles of food, for I saw several lizards chasing them. I saw quite a number of young, and presume the breeding season has not been over very long.

"Their food consists exclusively of insects. The stomachs examined contained grasshoppers, caterpillars, grubs, beetles, etc." (Heller.)

General remarks.—The small size of its scales causes this species to bear a general resemblance to the *Tropidurus* of Abingdon Island. The coloration, however, is very different: the Duncan lizards are the reddest of the *Tropiduri,* while the Abingdon species is of a bluish-gray tone. The Duncan lizard does not show the speckled head so characteristic of the Abingdon form. The scales on the belly of Duncan specimens are smaller than in any other species.

Tropidurus habelii (Steindachner)

Bindloe Island Lizard

1876, *Tropidurus pacificus* (var. *habelii*), Steindachner, Festschrift Zool.-Bot. Ges. Wien, 1876, p. 314, pl. II, fig. 2 (type locality **Indefatigable** [?] and **Bindloe Islands, Galapagos Archipelago).**

1877, *Liocephalus pacificus*, Günther, Proc. Zool. Soc. Lond., 1877, p. 67 (part).

1890, *Tropidurus pacificus*, Baur, Biol. Centralbl., X, 1890, p. 479; Boulenger, Ann. and Mag. Nat. Hist., (6), VII, 1891, p. 501 (part).

1892, *Tropidurus habelii*, Baur, Festschrift für Leuckart, 1892, p. 271; Heller, Proc. Washington Acad. Sci., V. 1903, p. 81.

Diagnosis.—Neck folds fewer, sides of neck covered with scales instead of granules; more than 65 scales around middle of body; no light longitudinal dorsolateral stripes; no red in coloration; dorsal crest in males higher than in any other race.

Types.—Vienna Museum. Collected by Dr. Habel on **"Indefatigable [?] and Bindloe Islands," Galapagos Archipelago.**

Distribution.—This species is peculiar to Bindloe Island, Galapagos Archipelago.

Material.—The Academy's collection contains about one hundred and seventy-three specimens, of which forty males and seventy-five females have been included in the table of scale counts.

Description of adult male No. 12397.—The head is covered above with smooth scales; interparietal largest, broader than long; five or six large supraoculars; superciliaries imbricate; five superior and five inferior labials, to below middle of eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of five or six long, narrow scales. Side of neck between ear-opening and fore limb with comparatively few folds, covered with keeled, imbricate scales. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins about half the length of the interparietal behind this plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are a little smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ears. The scales on the chest are largest, smooth and imbricate. The limbs are provided above with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with rather small scales. The lateral caudals are strongly keeled and mucronate, while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The general coloration in alcohol is grayish brown, with little evidence of darker markings except a black blotch in front of the shoulder. The posterior gular region is darker. The head, neck, body, limbs, and tail are very slightly specked with light bluish gray, but there is no band of the same color along the medium dorsal region. The hind limbs are not distinctly spotted with black. The lower surfaces are yellowish white more or less suffused with brown.

Length to anus	mm. 111
Length of tail	140+
Snout to ear	23
Width of head	18
Fore limb	48
Hind limb	81
Base of fifth to end of fourth toe	31
Height of crest on nape	5
Height of crest on midbody	4
Height of crest on tail	5

Coloration in life of adult male.—Above dark brown, spotted with light gray; crest grayish; tail and nape olive brown; limbs above lighter, more spotted; top of head olive brown. Belly grayish; breast red with dark blotches; throat and lower jaw also dark, but with more red than the breast. Sides of body and neck lake red; a black antehumeral spot.

Coloration in life of adult female.—Above dusky greenish spotted with black, becoming dusky on the tail, and brown on the head; limbs above with much light olive. Sides of body dark lake red, chest lighter red; lower jaw and throat dark, like the sides. Belly and limbs below clay yellow; tail inferiorly dusky yellow. Sides of head light brown; sides of neck dark red like throat; a black antehumeral spot.

Variation.—Males may have the throat quite light, but it usually is dark, and this coloring extends down over the under surface of the shoulders. Females have light or dark gray throats, sometimes with a slight showing of red. The dark coloring of the back may extend down on the lower surfaces of the body and limbs, so that these surfaces may be everywhere dark gray, or may show only a little gray.

The interoccipital is as wide as long. Variation in the scale counts is shown in the following table:

TABLE OF SCALE COUNTS—Bindloe Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
12275	♂	75	49	75	12282	♀	71	50	69
12277	♂	74	51	75	12287	♀	68	47	71
12278	♂	71	54	78	12298	♀	73	50	74
12279	♂	69	47	75	12305	♀	70	53	72
12280	♂	75	51	76	12306	♀	68	50	70
12284	♂	70	51	77	12307	♀	68	46	72
12285	♂	70	46	74	12308	♀	73	50	70
12288	♂	66	49	75	12311	♀	73	47	74
12291	♂	68	47	71	12312	♀	71	51	71
12293	♂	73	52	80	12313	♀	70	45	73
12295	♂	72	51	76	12314	♀	72	53	76

TABLE OF SCALE COUNTS—Bindloe Island—*Continued*

Number	Sex	Scale Rows	Crest	Belly
12297	♂	66	49	75
12304	♂	66	48	76
12317	♂	70	52	76
12318	♂	70	50	73
12323	♂	70	51	76
12325	♂	70	49	74
12327	♂	70	49	76
12333	♂	70	52	75
12337	♂	67	46	73
12350	♂	70	50	73
12353	♂	71	48	72
12354	♂	71	47	74
12362	♂	72	50	75
12374	♂	72	49	77
12380	♂	75	50	78
12383	♂	69	49	80
12384	♂	69	47	78
12385	♂	74	46	70
12389	♂	69	51	71
12390	♂	72	47	70
12395	♂	75	48	78
12397	♂	72	46	74
12402	♂	71	53	74
12419	♂	70	47	71
12420	♂	70	51	77
12427	♂	71	52	73
12429	♂	68	53	80
12430	♂	69	46	76
12435	♂	71	51	74
12315	♀	70	47	76
12316	♀	75	55	77
12319	♀	71	49	73
12320	♀	72	49	73
12321	♀	72	46	75
12322	♀	68	48	75
12324	♀	68	46	72
12326	♀	74	48	71
12328	♀	70	51	70
12329	♀	69	50	72
12330	♀	70	50	..
12331	♀	75	48	70
12332	♀	67	43	72
12334	♀	69	52	76
12335	♀	71	45	74
12338	♀	70	47	71
12339	♀	68	50	76
12340	♀	68	48	72
12341	♀	69	48	72
12342	♀	67	43	74
12343	♀	68	48	71
12344	♀	67	51	69
12345	♀	69	47	69
12346	♀	68	49	71
12348	♀	69	50	76
12349	♀	68	50	68
12351	♀	70	47	70
12358	♀	68	51	72
12361	♀	67	51	72
12363	♀	69	45	73
12365	♀	68	48	70
12367	♀	68	47	69
12373	♀	69	45	68
12375	♀	66	50	70
12376	♀	70	46	71
12377	♀	69	53	75
12378	♀	71	53	76
12381	♀	67	52	71
12387	♀	68	47	72
12388	♀	68	48	69
12393	♀	69	47	68
12394	♀	68	45	70
12396	♀	70	50	73.
12398	♀	67	51	72
12400	♀	73	49	75
12401	♀	71	44	74
12403	♀	69	49	74
12404	♀	70	48	74
12406	♀	71	52	74
12407	♀	75	49	72
12408	♀	71	48	73
12409	♀	70	..	75
12410	♀	74	51	75
12412	♀	71	50	76
12413	♀	72	48	74
12414	♀	73	54	76

TABLE OF SCALE COUNTS—BINDLOE ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly
12415	♀	75	50	75
12417	♀	69	50	75
12418	♀	71	49	73
12421	♀	72	50	77
12422	♀	71	46	77
12423	♀	68	49	71
12424	♀	74	48	77
12432	♀	71	48	71

Habits.—Bindloe Island, Sept. 17, 1906. We rowed down the coast about a mile to where the brush came down to the beach, and then worked inland toward the rim of the crater. Near the coast the ground is black ashes covered with low brush and a few small trees. Farther inland the brush becomes very thick, and cactus appears. About one mile inland we found the lizards abundant all through the brush. They keep well under cover, and rarely come into the open. The numerous hawks make them very wild. They are all dark in color, the males being about the color of the black ashes. Some have a very prominent dorsal crest. The stomachs of several examined contained vegetable matter. Insects seem to be scarce; sprouts and green leaves, though not particularly plentiful, form their principal articles of diet. The ovaries of several females were well developed. King worked along the rocks near the water, and found *Tropiduri* abundant. They seem to range over the rocks along the coast. The belt near the shore where the brush is not thick seems to be deserted. Beginning a mile inland, one finds them again, and they range thence to the top of the island.

Their "food appears to be wholly vegetable. All stomachs examined contained blossoms, seed-capsules, and berries." (Heller.)

General remarks.—This is one of the larger species. The males have higher crests than found in any other of the Galapagos *Tropiduri,* and show fewer black markings. The crests of the females are much lower. The sides of the neck are covered with imbricate scales, as in the case of the Chatham Island lizard.

Tropidurus bivittatus (Peters)

Chatham Island Lizard

1843, *Leiocephalus grayii*, Bell, Zool. Beagle Rept., 1843, p. 24 (part); Gray, Cat. Lizards, 1844, p. 218 (part); Günther, Proc. Zool. Soc. Lond., 1877, p. 67 (part).

1871, *Craniopeltis bivittata*, Peters, Mon. Berlin. Acad., 1871, p. 645 (type locality **Chatham Island, Galapagos Archipelago).**

1876. *Tropidurus (Craniopeltis) grayii*, Steindachner, Festschrift Zool.-Bot. Ges. Wien, 1876, p. 310 (part).

1885, *Tropidurus grayi*, Boulenger, Cat. Lizards, II, 1885, p. 172.

1889, *Tropidurus lemniscatus*, Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 145 (type locality **Chatham Island, Galapagos Archipelago)**; Baur, Biol. Centralbl., X, 1890, pp. 478, 479.

1891, *Tropidurus bivittatus*, Boulenger, Ann. and Mag. Nat. Mus., (6), VII, 1891, p. 501; Baur, Festschrift für Leuckart, 1902, p. 272; Heller, Proc. Washington Acad. Sci., V. 1903, p. 80.

Diagnosis.—Neck with fewer folds, sides of neck covered with scales instead of granules; not more than 65 scales around middle of body; males longitudinally striped; no red in coloration; crest of males not very high.

Types.—The material upon which Peters based his description of *Craniopeltis bivittata* was secured on **Chatham Island** by Dr. Kingberg, in 1852, and probably is in the Museum of Stockholm. Cope's *Tropidurus lemniscatus* was described from specimens collected by the naturalists of the "Albatross," in 1887-88, upon **Chatham Island.** These specimens are now Nos. 14945 to 14964 of the U. S. National Museum collection.

Distribution.—This species is restricted to Chatham Island, Galapagos Archipelago.

Material.—The Academy's collection contains about two hundred and eighty specimens of this species, of which seventy-three males and forty-two females have been included in the table of scale counts.

. *Description of adult male No. 9920.*—The head is covered above with smooth scales; interparietal largest, broader than long; five or six large supraoculars; superciliaries imbricate; four superior and five inferior labials, to below the middle of the eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of five or six narrow scales. Side of neck between ear-opening and fore limb with few folds, covered with keeled, imbricate scales. Strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins a short distance behind the interparietal, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are much smaller than the dorsals. The gular scales are smooth,

smaller posteriorly, smallest centrally. The scales on the chest are about as large as the dorsals, smooth and imbricate. The limbs are provided above with keeled scales, and below, except on the forearms, hands, and feet, with smooth scales. The posterior surface of the thigh is covered with smooth imbricate scales. The lateral caudals are strongly keeled and mucronate; while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The general coloration in alcohol is brown, with a very distinct greenish-yellow dorsolateral light stripe, and a somewhat less distinct lateral stripe, along each side of the body. There are slight indications of darker brown cross-bars. The head, limbs, and tail are brown, unicolor or with a few small light spots. The lower surfaces are white clouded with brown on the chin, throat, and limbs. There is a black antehumeral blotch. Females lack the light longitudinal streaks.

Length to anus .....mm.	79
Length of tail	127+
Snout to ear	17
Width of head	14
Fore limb	36
Hind limb	60
Base of fifth to end of fourth toe	22
Height of crest on nape	1.5
Height of crest on midbody	1
Height of crest on tail	1.8

Coloration in life of adult male.—Above olive brown, top of head darker brown; a light stripe two and one-half scales wide beginning behind the eye, running slightly upward above the ear and along the sides to the base of the tail; a narrow stripe of the same color beginning at the axilla and extending along sides to base of thigh. Belly yellowish, red-tinged; breast, tail, and hind limbs below soiled whitish or grayish; throat and lower jaw the same; sides of head grayish; sides of body below the lateral stripes barred yellow and brick red; a black antehumeral spot. Limbs above spotted with brown and gray; tail posteriorly light brown.

Coloration in life of adult female.—Above golden brown, darker on top of head and along base of dorsal crest; limbs above like the back. Sides of head brownish; sides of throat and body bright brick red; a slaty antehumeral spot with black center. Belly and inferior surfaces of limbs cream; tail yellowish below. Chin greenish; rest of lower jaw, throat, and breast buffy. Eyelids dark blue-green.

Variation.—The females agree in the faintness or absence of the light dorsolateral band, which is so characteristic of the males of this species. They also lack the black blotch in front of the arm, which the males constantly show except when young. The dark cross-lines on the sublabial region may be indistinct or absent.

The interoccipital plate is wider than long. The crests are higher in males than in females, and increase in height with age. The scale counts are given in the following table:

TABLE OF SCALE COUNTS—CHATHAM ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9916	♂	59	44	70	9866	♀	55	46	75
9919	♂	58	44	71	9867	♀	60	49	71
9920	♂	63	46	73	9868	♀	62	46	74
9922	♂	54	47	64	9869	♀	56	47	76
9923	♂	61	50	75	9870	♀	58	50	71
9924	♂	60	46	72	9871	♀	53	44	72
9925	♂	57	47	70	9872	♀	58	50	71
9926	♂	58	45	75	9882	♀	58	46	73
9927	♂	63	42	71	9900	♀	56	47	73
9928	♂	57	52	72	9901	♀	54	..	73
9929	♂	64	44	77	9902	♀	53	..	67
9930	♂	62	47	70	9903	♀	58	45	74
9931	♂	60	44	70	9904	♀	57	51	73
9932	♂	56	47	72	9905	♀	55	49	70
9934	♂	57	45	71	9917	♀	59	44	67
9935	♂	59	45	72	9918	♀	56	48	73
9936	♂	59	45	71	9921	♀	57	51	75
9938	♂	60	43	72	9943	♀	62	50	73
9939	♂	58	45	71	9944	♀	53	44	70
9940	♂	58	45	71	9946	♀	58	50	70
9941	♂	58	45	67	9956	♀	61	45	66
9942	♂	59	46	68	9969	♀	56	48	73
9949	♂	54	42	67	9971	♀	57	45	69
9951	♂	58	43	70	10005	♀	55	47	70
9952	♂	59	45	67	10006	♀	58	50	72
9953	♂	62	41	73	11022	♀	61	49	75
9954	♂	59	42	67	11023	♀	58	50	75
9955	♂	58	42	73	11024	♀	61	49	68
9958	♂	57	50	72	11028	♀	60	51	69
9959	♂	58	47	71	11032	♀	60	50	72
11025	♂	55	48	71	11037	♀	60	52	75
11026	♂	56	46	71	11038	♀	60	47	73
11027	♂	56	47	70	11041	♀	55	49	67
11029	♂	57	47	74	11047	♀	58	50	74
11030	♂	58	46	74	11050	♀	57	47	71
11031	♂	58	44	70	11971	♀	59	46	75
11033	♂	61	45	68	11972	♀	57	47	73
11034	♂	62	44	77	11978	♀	61	45	74
11035	♂	56	47	62	11979	♀	57	47	72
11036	♂	58	48	69	11980	♀	56	42	69
11042	♂	59	48	67	11985	♀	61	42	73
11043	♂	56	50	72	11988	♀	59	50	75
11044	♂	57	43	68					
11045	♂	57	45	72					
11046	♂	53	42	67					
11048	♂	55	48	62					
11049	♂	58	48	70					
11955	♂	64	49	72					
11956	♂	58	39	70					
11958	♂	59	45	71					

TABLE OF SCALE COUNTS—CHATHAM ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly
11959	♂	63	45	69
11960	♂	62	45	68
11961	♂	62	42	69
11962	♂	63	47	74
11964	♂	59	46	74
11965	♂	63	48	75
11966	♂	56	41	62
11967	♂	57	47	66
11968	♂	60	40	67
11969	♂	61	44	73
11970	♂	64	45	71
11973	♂	63	42	72
11974	♂	57	42	68
11975	♂	58	43	71
11976	♂	59	50	73
11977	♂	53	45	67
11981	♂	59	45	75
11982	♂	63	44	73
11983	♂	61	47	73
11984	♂	60	45	74
11986	♂	59	44	72
11987	♂	61	43	70
11989	♂	56	47	75

Habits.—Chatham Island, Oct. 16, 1905. I went ashore at Wreck Bay, and worked near the coast. *Tropiduri* were fairly common. I found one (No. 1355) with a piece of crab's leg in its mouth, and another (No. 1380) with a large worm. A great many were small, and I saw no very large ones. Jan. 15, 1906. Saw several *Tropiduri* shedding their skins. The females contain eggs now in January. Jan. 29. Went to the top of Chatham Island. The soil is damp, and no reptiles were observed. Beyond a mile from the shore no *Tropiduri* are to be seen. Feb. 8. Went ashore at Fresh Water Bay, and worked up to about 1000 feet. I saw only six lizards, all very wild, probably owing to the presence of numerous cats, of which we saw many signs. I suppose the highest altitude at which the lizards were observed was 600 feet. Feb. 10. Went ashore at Sappho Cove and worked inland. Lizards are very scarce. Feb. 23. Went collecting at Wreck Bay, and got only a few *Tropiduri* and geckos. The lizards seem to be fewer in number at this season. One female was obtained with large eggs. July 5. Went up to the road at Wreck Bay collecting. Find the lizards rare now, and most of them are very small. The island is very dry now, it being the winter

season, and the natives report having had no rain for some time.

General remarks.—The Chatham Island *Tropidurus* is one of the smaller species. The males are very prettily striped, while the females are nearly unicolor. The crest is moderately well developed in the males, low in the females. This species agrees with the Bindloe lizard in having scales instead of granules on the sides of the neck, a character which distinguishes these two species from all the other species of the archipelago.

Tropidurus delanonis Baur
Hood Island Lizard

1889, *Tropidurus grayi,* Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 145 (part); Boulenger, Ann. and Mag. Nat. Hist., (6), VII, 1891, p. 502 (part).

1890, *Tropidurus delanonis,* Baur, Biol. Centralbl., X, 1890, pp. 478, 479 (type locality **Hood Island, Galapagos Archipelago**); Baur, Festschrift für Leuckart, 1892, p. 270; Heller, Proc. Washington Acad. Sci., V, 1903, p. 78.

1890, *Tropidurus hoodensis,* Baur, reprints from Biol. Centralbl., X, 1890, pp. 478, 479 (substituting name); Baur, Festschrift für Leuckart, 1892, pp. 265, 270.

Diagnosis.—Sides of neck with numerous folds; skin between folds covered with granules, some small scales on ridges of folds of large males; hind legs of males with definite dark spots; interparietal plate seldom much broader than long; not more than eighty scales around middle of body; 50 to 61 scales in crest; back not definitely spotted as in *T. grayi;* much red in coloration; old males larger than in other species.

Types.—This species was described by Dr. Baur from thirteen specimens, numbered 15014 to 15026 of the U. S. National Museum collection, which had been secured on **Hood Island** by the naturalists of the "Albatross," in April, 1888.

Distribution.—This species has been found only on Hood Island and Gardner-near-Hood, Galapagos Archipelago.

Material.—The Academy's collection contains about two hundred and forty specimens from Hood, and twenty-three from Gardner; of which seventy males and sixty-eight females from Hood, and seven males and six females from Gardner have been included in the tables of scale counts.

Description of adult male No. 11802.—The head is covered above with smooth scales; interparietal largest, little if any broader than long; five to seven large supraoculars; superciliaries imbricate; five superior and

five inferior labials, to below middle of the eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of five or six long, narrow scales. Side of neck between ear-opening and fore limb with numerous folds, mostly covered with granular scales. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins a short distance behind the interparietal plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are considerably smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ears. The scales on the chest are largest, smooth, and imbricate. The limbs are provided above with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with smooth sub-granular scales, between which smaller granules may often be seen. The lateral caudals are strongly keeled and mucronate; while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The coloration in alcohol is olive brown above, spotted, except on the head and tail, with small, rounded, discrete blackish spots, each covering one or more scales. The chin is grayish slate. The gular region and chest are black. The other lower surfaces are grayish yellow.

Length to anus ..... mm.	137
Length of tail	163+
Snout to ear	16
Width of head	21
Fore limb	54
Hind limb	85
Base of fifth to end of fourth toe	30
Height of crest on nape	1.5
Height of crest on midbody	1
Height of crest on tail	3

Coloration in life of adult male.—Above olive brown, spotted, except the head, with light yellowish; tail dark reddish, the crest light brown; hind limbs reddish, light-spotted distally; fore limbs like the sides of the body. Belly medially, and hind limbs and tail inferiorly, dusky-yellow; the belly anteriorly and laterally red. Mandible dark greenish gray, throat black, chest black with large straw-yellow blotches. Fore limbs below proximally like the breast. Sides of head and neck light brown with black blotches; sides of body reddish, spotted with light yellow; tail brick red on the sides.

Coloration in life of adult female.—Body and tail above olive brown; limbs similar in coloration. Sides of belly and tail reddish; a black antehumeral spot. Whole head, throat, and chest brick red, becoming darker on nape and top of head, fading to dull orange on anterior belly; belly and tail and hind limbs inferiorly cream yellow; fore limbs below proximally like the breast.

Variation.—The two sexes from this island differ more than in other species; but there is little variation among the females, and still less among the males. The females all agree in having the black blotch in front of the shoulder and brick red coloring of the throat, which in some specimens extends down to the under surface of the shoulders. The males show little or no variation. Some specimens show red on the sides and the under surface of the tail. They all agree in the black throat and scattered black markings extending down past the shoulders. Specimens from Gardiner-near-Hood are like those from Hood. A few females taken there show a darker red, but this is not constant.

The interoccipital usually is as long as wide, but in a few specimens is wider than long. Scale counts are shown in the following table:

TABLE OF SCALE COUNTS—Hood Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9252	♂	67	54	77	9250	♀	76	60	85
9254	♂	71	51	81	9322	♀	68	51	78
9256	♂	69	53	77	9330	♀	70	53	74
9257	♂	70	56	82	10888	♀	71	54	73
9258	♂	69	51	77	10889	♀	73	57	79
9259	♂	69	55	77	10890	♀	71	56	81
9260	♂	68	55	80	10892	♀	73	54	77
9261	♂	67	60	84	10894	♀	71	57	79
9262	♂	70	59	81	10895	♀	72	54	78
9264	♂	70	52	79	10896	♀	69	56	73
9265	♂	69	60	83	10900	♀	69	53	76
9266	♂	72	56	77	10903	♀	70	56	83
9267	♂	69	56	78	10904	♀	69	54	73
9268	♂	69	51	81	10905	♀	69	53	78
9310	♂	69	55	85	10906	♀	70	55	83
9311	♂	67	52	78	10908	♀	73	59	71
9312	♂	69	55	74	10909	♀	76	57	79
9317	♂	67	51	80	10910	♀	70	53	79
9318	♂	74	60	79	10913	♀	77	58	75
9319	♂	73	58	77	10914	♀	70	56	79
9324	♂	68	55	80	10915	♀	70	54	75
9325	♂	67	52	84	11829	♀	70	61	74
9326	♂	71	51	81	11830	♀	66	55	76
9327	♂	67	53	79	11831	♀	70	54	78
10886	♂	64	56	82	11832	♀	71	53	79
10887	♂	76	51	83	11833	♀	73	56	84
10891	♂	68	57	81	11834	♀	68	57	74
10893	♂	69	52	78	11835	♀	74	55	77
10897	♂	74	51	83	11836	♀	76	55	80
10898	♂	69	57	82	11837	♀	76	57	74
10899	♂	72	53	78	11838	♀	75	57	78
10901	♂	68	58	81	11839	♀	69	56	78

TABLE OF SCALE COUNTS—HOOD ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10902	♂	72	57	86	11843	♀	70	58	83
10907	♂	71	52	79	11844	♀	72	57	76
10911	♂	70	54	81	11845	♀	73	56	79
10912	♂	68	58	83	11846	♀	66	57	75
10916	♂	70	..	78	11847	♀	71	58	86
10917	♂	69	57	76	11848	♀	69	61	77
10918	♂	71	56	81	11850	♀	78	59	86
11798	♂	69	55	73	11852	♀	69	61	81
11801	♂	67	51	77	11854	♀	76	61	83
11802	♂	68	52	75	11855	♀	66	52	76
11804	♂	71	55	75	11859	♀	72	58	82
11805	♂	72	52	67	11860	♀	69	59	80
11806	♂	70	54	75	11861	♀	77	57	83
11807	♂	76	61	81	11862	♀	68	51	74
11808	♂	72	53	78	11863	♀	68	55	80
11810	♂	76	50	80	11864	♀	69	57	74
11811	♂	71	57	75	11865	♀	76	54	82
11812	♂	70	54	73	11866	♀	72	57	78
11813	♂	70	50	70	11867	♀	72	58	76
11816	♂	68	51	76	11868	♀	70	57	84
11817	♂	69	52	75	11869	♀	73	54	80
11820	♂	67	54	73	11870	♀	68	55	83
11821	♂	68	51	76	11872	♀	71	58	78
11824	♂	74	56	76	11873	♀	72	57	75
11825	♂	67	53	73	11874	♀	72	53	71
11826	♂	69	55	80	11878	♀	76	56	74
11827	♂	71	52	79	11881	♀	75	54	74
11828	♂	70	57	76	11882	♀	75	54	83
11900	♂	74	58	80	11883	♀	72	54	82
11902	♂	72	56	79	11884	♀	71	56	74
11904	♂	73	50	76	11885	♀	78	61	83
11905	♂	71	52	72	11888	♀	70	56	77
11906	♂	70	51	77	11889	♀	73	55	79
11907	♂	70	53	80	11890	♀	70	57	82
11908	♂	68	55	77	11891	♀	78	57	80
11909	♂	73	52	80	11894	♀	77	57	75
11910	♂	70	51	75					
11928	♂	69	54	77					

TABLE OF SCALE COUNTS—GARDNER-NEAR-HOOD

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9347	♂	73	55	82	9353	♀	76	55	..
9348	♂	70	56	79	9354	♀	76	62	81
9350	♂	72	55	84	9356	♀	68	52	83
9351	♂	74	56	83	9359	♀	71	60	83
9355	♂	71	..	80	9360	♀	73	52	78
9358	♂	73	..	82	9363	♀	71	52	83
9361	♂	73	52	81					

Habits.—Hood Island, Sept. 25, 1905. I found the lizards very common. They can be obtained easily with a stick. They

occurred all through the brush, and sometimes climbed up into the cactus trees. Although they were scattered everywhere, I found them more numerous near the beach, in the sand and brush, than on rocky soil. As a rule, they would stand perfectly still and gaze at one, but I noticed a few of the large males bobbing their heads up and down. Sept. 26. I took the eggs from a female *Tropidurus* and preserved them. They were five in number. These lizards were abundant and extremely tame. I saw some eating green leaves on the shrubs, and some would pick up crumbs from our lunch. Feb. 2, 1906. Found the *Tropidurus* common near the coast, but none to speak of near the top of the island. The vegetation is well dried up now, there being only one or two plants in leaf. I examined the stomachs of six males and one female *Tropidurus,* and found that all contained the leaves of a juicy green shrub that grows along the shore and is common on all the islands. June 25, 1906. Went down to the albatross colony and gathered in a few sea-iguanas and lizards. I find *Tropiduri* abundant everywhere, and occasionally see them on top of the cactus trees, where they go probably in search of insects. They have few enemies; hawks are not very plentiful, and the only birds that seem to harm them much are the mocking birds (Nesomimus). These can be seen picking at the lizards' tails, breaking them off in the middle, and flying away with the ends.

Gardner-near-Hood, Sept. 27, 1905. Found the *Tropiduri* fairly common, but a little more shy than on Hood Island. As a rule, the females seemed to be a little smaller than those on Hood, and a little darker under the throat, where the color is almost chocolate. Feb. 23, 1906. Saw a *Tropidurus* feeding on maggots on a dead seal, and others eating flies; but they appear to eat leaves more than anything else.

Heller states that the food of the Hood Island *Tropidurus* consists of grasshoppers, beetles, caterpillars, seed-capsules and berries.

General remarks.—The Hood Island *Tropidurus* attains a greater size than is reached by any other species of the archipelago. It seems to be most nearly related to the Charles

Island species, but is quite distinct. It is still fairly common. No difference has been noted between specimens from Hood Island and those from Gardner-near-Hood. Five eggs taken from a female on Hood Island, Sept. 26, 1905, measure 12× 20, 13×21, 13×22, 12×23, and 12×24 mm. They have tough white, non-calcareous shells.

Tropidurus grayii (Bell)

Charles Island Lizard

1843, *Leiocephalus grayii*, Bell, Zoology Beagle, Rept., 1843, p. 24, pl. XIII, fig. 1 (part) (type locality **Chatham** and **Charles Islands, Galapagos Archipelago**); Gray, Cat. Lizards, 1845, p. 218 (part); Günther, Proc. Zool. Soc. Lond., 1877, p. 67 (part).

? 1851, *Holotropis grayii*, Duméril, Cat. Méth. Rept., 1851, p. 70 (part); Duméril, Arch. Mus., VIII, p. 538 (part).

1871, *Craniopeltis grayii*, Peters, Mon. Berl. Acad., 1871, p. 645 (part).

1876, *Tropidurus (Craniopeltis) grayii*, Steindachner, Festschr. Zool.-Bot. Ges. Wien, 1876, p. 310, pl. II, fig. 1 (part).

1885, *Tropidurus grayii*, Boulenger, Cat. Lizards, II, 1885, p. 172 (part); Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 145 (part); Baur, Biol. Centralbl., X, 1890, pp. 478, 479; Boulenger, Ann. & Mag. Nat. Hist., (6), VII, 1891, p. 502 (part); Baur, Festschrift für Leuckart, 1892, p. 265.

1903, *Tropidurus grayi grayi*, Heller, Proc. Washington Acad. Sci., V, 1903, p. 69 (part).

Diagnosis.—Sides of neck granular with numerous folds, hind legs of males with definite dark spots; interparietal plate seldom much broader than long; not more than eighty scales around middle of body; 36 to 48 scales in crest; back with very definite discrete rounded blackish spots; little or no red in coloration.

Types.—The original specimens were collected by Charles Darwin in 1835 during the voyage of the "Beagle," and are now in the British Museum. They were said to have been collected in **Chatham** and **Charles islands,** but the description is of the Charles Island species.

Distribution.—This species appears to be restricted to Charles Island and its neighboring islets, Gardner, Champion, and Enderby.

Material.—Besides the types collected by Darwin, this species has been secured only by Kinberg and Dr. Baur. It appears to be nearly extinct on Charles Island, where Baur collected his specimen. The Academy's collection contains fif-

teen from Charles Island, twenty-seven from Gardner-near-Charles, sixteen from Champion, and thirty-one from Enderby. Of these, one male and fourteen females from Charles, thirteen males and fourteen females from Gardner, seven males and nine females from Champion, and thirteen males and eighteen females from Enderby are included in the tables of scale counts.

Description of adult male No. 9536.—The head is covered above with smooth scales; interparietal largest, broader than long; four or five large supraoculars; superciliaries imbricate; five superior and five inferior labials, to below middle of the eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of five or six long, narrow scales. Side of neck between ear-opening and fore limb with numerous folds, covered with granular scales. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins half the length of the interparietal behind this plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are a little smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ears. The scales on the chest are largest, smooth and imbricate. The limbs are provided above with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with keeled, imbricate scales. The lateral caudals are strongly keeled and mucronate; while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The color above is olive brown, unicolor on the top and sides of the head, but relieved with dark brown or black spots or cross-bars on the body, limbs, and base of tail. The lower surfaces are greenish white. The gular region is suffused with dark gray, and the throat and chest bear discrete, rounded spots of blackish brown.

Length to anus ..... mm.	65
Length of tail	120
Snout to ear	15
Width of head	13
Fore limb	34
Hind limb	54
Base of fifth to end of fourth toe	21
Height of crest on nape	1
Height of crest on midbody	.8
Height of crest on tail	1.2

Variation.—The lizards of Charles, Champion, Enderby, and Gardner-near-Charles islands seem to differ in no respect. The sexes agree in coloration, except that the males have darker throats and larger dorsal spots. Females may have either white or grayish throats, spotted with black. The inter-

occipital plate seldom is much wider than long. Variation in scale counts is shown in the following tables:

TABLE OF SCALE COUNTS—CHARLES ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9536	♂	62	44	73	9533	♀	..	..	66
					9534	♀	64	40	69
					9535	♀	60	43	67
					9537	♀	61	41	67
					9538	♀	60	42	67
					9539	♀	64	..	..
					9540	♀	..	42	69
					9541	♀	62	43	65
					9542	♀	60	..	70
					9543	♀	60	40	67
					11057	♀	58	42	70
					11058	♀	59	..	69
					11059	♀	62	43	69
					11060	♀	60	44	74

TABLE OF SCALE COUNTS—GARDNER-NEAR-CHARLES

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9422	♂	67	38	68	9421	♀	67	38	67
9423	♂	69	38	68	9424	♀	67	45	72
9425	♂	72	38	71	9426	♀	70	43	72
9427	♂	70	44	72	9429	♀	67	42	68
9428	♂	66	38	72	9431	♀	69	45	66
9430	♂	69	42	70	9432	♀	67	39	70
9433	♂	69	42	71	9437	♀	63	42	72
9434	♂	67	43	70	9439	♀	69	43	73
9435	♂	72	44	71	9440	♀	69	41	70
9436	♂	69	41	72	9441	♀	70	44	73
9438	♂	66	41	70	9442	♀	69	..	66
9444	♂	70	43	72	9443	♀	70	43	66
9445	♂	69	40	70	9446	♀	69	45	73
					9447	♀	..	45	70

TABLE OF SCALE COUNTS—CHAMPION ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
9449	♂	67	45	72	9452	♀	64	48	76
9450	♂	66	43	73	9455	♀	62	46	74
9451	♂	68	40	73	9456	♀	64	45	72
9453	♂	61	..	70	9457	♀	62	43	69
9454	♂	65	42	71	9458	♀	62	..	68
9461	♂	63	43	69	9459	♀	62	41	72
11054	♂	62	42	76	9460	♀	64	41	75
					11055	♀	61	45	71
					11056	♀	64	43	73

TABLE OF SCALE COUNTS—Enderby Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
11601	♂	71	41	68	11605	♀	70	45	75
11602	♂	73	39	77	11615	♀	72	44	73
11603	♂	67	43	67	11616	♀	73	46	72
11604	♂	69	41	74	11617	♀	70	43	73
11606	♂	72	40	73	11618	♀	77	41	75
11607	♂	67	36	69	11619	♀	74	42	..
11608	♂	72	43	74	11620	♀	75	42	73
11609	♂	73	40	73	11621	♀	71	43	70
11610	♂	74	40	75	11622	♀	73	43	70
11611	♂	65	40	75	11623	♀	73	44	70
11612	♂	68	40	75	11624	♀	68	43	72
11613	♂	70	36	77	11625	♀	68	40	70
11614	♂	72	43	75	11626	♀	69	44	70
					11627	♀	71	42	74
					11628	♀	76	43	71
					11629	♀	67	45	71
					11630	♀	71	42	70
					11631	♀	71	46	70

Habits.—Charles Island, Oct. 4, 1905. Went ashore at Post Office Bay and worked toward the interior. The country is mountainous, but there are some large spaces of level land. Found animal life of every description scarce. I did not see a *Tropidurus* or a snake the whole day. Saw lots of cat tracks, so I suppose the lizards have been pretty well cleaned out, although there are beds of lava where they easily could escape by going underneath the blocks. Oct. 5. Went ashore on the northeast end of the island near the lagoon. Got one *Tropidurus,* and King got two, on a lava pile. King saw one more, but could not get it. Ochsner reports seeing one also, but failed to catch it. These were all that were seen by any of our party. Oct. 6. Went ashore for half a day at the lagoon on the northeast end of the island. Had better luck with the *Tropiduri,* getting five. They were in a large lava bed near the lagoon. Oct. 9. Went ashore at Black Beach, and worked into the interior up to some springs south of the highest peak. I saw no *Tropiduri* or snakes. Oct. 10. Worked up to the top of the crater on the highest mountain, but saw no reptiles whatever. *Tropidurus* is extremely rare on Charles. I have not seen any since we arrived at Black Beach. Feb. 26, 1906. Went ashore at Cormorant Bay and collected four *Tropiduri.* I saw seven altogether, but missed three on account of defective shells. The particular spot where

these lizards were taken is on a lava bed which surrounds the lagoon. No specimens were seen outside of this. They are very rare and shy, and at one's approach go under the lava and into crevices. Signs of cats are seen everywhere, and they probably are the principal cause of the scarcity.

Gardner-near-Charles, Oct. 2, 1905. Gardner Island is an old crater. We landed on the N.W. side, which is the only one accessible. It is very steep and covered with broken lava and cactus shrubs. *Tropiduri* were shy and not very common. They were found in about the same numbers from the rocks on the coast to the top of the crater. It was a bad place to hunt, and we stayed only a couple of hours, but secured fifteen *Tropiduri.*

Champion Island, Oct. 3, 1905. We then sailed on to Champion Island, which is a very small crater and easily got around. We covered this island in an hour and a half. *Tropiduri* were scarce here, and were found on the west side, where all the seals stayed, as there is a little beach there. There are lots of flies that go on the seals when they sleep on the beach, and the lizards, therefore, find more food at this place.

Enderby Island, May 14, 1906. This island is part of the ruin of an old crater and is composed of tufa. One side is too steep to work on, so we went only along the top. The only things seen in the way of reptiles were *Tropiduri* and a gecko. The former were fairly common. Thirty-one were secured in about an hour spent on the island.

Tropidurus albemarlensis barringtonensis (Baur)

Barrington Island Lizard

1892, *Tropidurus barringtonensis,* Baur, Festschrift für Leuckart, 1892, p. 268 (type locality **Barrington Island, Galapagos Archipelago).**
1903, *Tropidurus grayi barringtonensis,* Heller, Proc. Washington Acad. Sci., V, 1903, p. 75.

Diagnosis.—Sides of neck granular, with numerous folds; hind legs of males without definite dark spots; interparietal plate usually much broader than long; not more than 76 scales around middle of body; scales smaller than in *T. albemarlensis,* 61 to 76 around middle of body.

Type.—Dr. Baur's original description was based upon thirty-eight specimens of this species from **Barrington Island.**

None of these were designated as types. I have been unable to learn their present location.

Distribution.—This lizard has been found only on Barrington Island, Galapagos Archipelago.

Material.—The Academy's collection contains one hundred and fifty-five specimens, of which fifty-seven males and seventy-four females have been included in the table of scale counts.

Description of adult male No. 10196.—The head is covered above with smooth scales; interparietal largest, broader than long; five or six large supraoculars; superciliaries imbricate; four superior and five inferior labials, to below middle of eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of four or five long, narrow scales. Side of neck between ear-opening and fore limb with numerous folds, covered with granular scales except on tops of folds. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins half the length of the interparietal behind this plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are much smaller than the dorsals. The gular scales are smooth, smaller posteriorly, smallest below the ears. The scales on the chest are largest, smooth and imbricate. The limbs are provided above with keeled, and below with smooth scales. The posterior surface of the thigh is covered with weakly keeled, imbricate scales. The lateral caudals are strongly keeled and mucronate; while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The color above is olive brown, somewhat mottled on the top and sides of the head. The dorsal surfaces of the body, neck, and fore limbs show numerous dark brown or black spots or cross-bars. The lower surfaces are greenish white, lightest on the chin. The gular region is suffused with dark gray, and the throat, chin and chest bear discrete, rounded spots of blackish brown.

Length to anus	mm.	95
Length of tail		113+
Snout to ear		20
Width of head		16
Fore limb		41
Hind limb		69
Base of fifth to end of fourth toe		28
Height of crest on nape		2
Height of crest on midbody		1.5
Height of crest on tail		2.8

Coloration in life of adult male.—Above light grayish brown, tail darker grayish; whole upper surface except the head spotted with blue-gray; the dorsum anteriorly and fore limbs black-barred and spotted; hind limbs and tail without dark bars. Head above olive green, grayish on sides and neck, black-spotted. A black antehumeral spot. Sides of

body behind the axilla reddish, black-barred and spotted; belly yellowish, spotted with pinkish and dusky on sides; breast and lower jaw brick red, spotted with black; chin yellowish without darker spots; throat black; fore limbs inferiorly red, black-spotted proximally like the breast; tail and hind limbs below light grayish green.

Coloration in life of adult female.—Above grayish brown, the dorsum crossed by dusky transverse bars; whole dorsal surface except head spotted with blue-gray; limbs above dusky-barred like back; head above olive brown, sides of snout grayish. Sides of head and neck from the eye to the antehumeral spot brick red; sides of body behind the axilla pinkish, obsoletely spotted with dusky; a black antehumeral spot. Belly and inferior surfaces of hind limbs and tail light grayish; breast lemon yellow, spotted with black; throat medially like the breast, spotted with dark brown; sides of body reddish; lower jaw pinkish, spotted with dusky; fore limbs inferiorly colored like breast, the forearm unspotted.

Variation.—The black spots on the back tend to form crossbars. Females are colored similarly to the males, but the black dorsal spots usually are somewhat smaller. The throat may be white with black spots, or may be suffused with gray. Large males may have some red on the throat; but this is seen in few specimens, and seems to be always absent in females. The interoccipital plate is wider than long. Variation in scale counts appears in the following table:

TABLE OF SCALE COUNTS—BARRINGTON ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10065	♂	67	52	72	10067	♀	63	48	76
10066	♂	68	48	76	10068	♀	67	49	74
10069	♂	66	46	77	10071	♀	63	50	72
10070	♂	65	50	72	10072	♀	67	52	74
10075	♂	65	52	77	10073	♀	69	51	71
10086	♂	63	47	75	10074	♀	65	51	75
10088	♂	71	50	80	10076	♀	66	51	72
10093	♂	69	54	78	10077	♀	62	45	70
10096	♂	70	52	79	10078	♀	63	54	75
10098	♂	65	53	79	10079	♀	71	52	73
10102	♂	68	50	76	10080	♀	64	49	74
10106	♂	67	48	78	10081	♀	67	49	80
10109	♂	68	52	76	10082	♀	61	49	71
10111	♂	63	49	74	10083	♀	70	48	76
10114	♂	66	48	76	10084	♀	67	50	77
10115	♂	62	48	73	10085	♀	65	48	76
10117	♂	67	50	..	10087	♀	65	49	76

TABLE OF SCALE COUNTS—Barrington Island—*Continued*

Number	Sex	Scale Rows	Crest	Belly
10119	♂	70	51	80
10120	♂	68	50	80
10122	♂	68	53	79
10123	♂	64	49	77
10125	♂	65	50	79
10127	♂	62	47	76
10128	♂	63	51	79
10130	♂	61	45	73
10136	♂	66	52	76
10137	♂	63	48	74
10164	♂	66	48	77
10166	♂	64	54	77
10179	♂	65	48	78
10196	♂	66	47	77
10197	♂	66	50	75
12019	♂	66	51	79
12020	♂	66	54	77
12025	♂	65	48	73
12026	♂	64	49	79
12029	♂	68	48	80
12031	♂	63	48	74
12032	♂	72	54	82
12033	♂	68	50	79
12034	♂	66	51	77
12035	♂	67	50	78
12036	♂	66	51	76
12037	♂	64	51	72
12038	♂	71	53	78
12039	♂	64	48	75
12040	♂	66	51	71
12041	♂	66	51	75
12042	♂	62	55	74
12043	♂	66	58	73
12044	♂	68	52	76
12045	♂	67	51	75
12046	♂	67	47	70
12051	♂	63	49	70
12052	♂	65	46	73
12053	♂	68	50	78
12054	♂	65	50	78

Number	Sex	Scale Rows	Crest	Belly
10089	♀	64	50	70
10090	♀	69	47	73
10091	♀	66	52	74
10092	♀	68	48	76
10094	♀	64	56	80
10095	♀	67	51	73
10097	♀	71	48	71
10099	♀	69	51	75
10100	♀	69	54	74
10138	♀	66	48	76
10139	♀	65	48	77
10140	♀	63	48	70
10141	♀	61	49	77
10142	♀	67	52	77
10143	♀	67	48	79
10144	♀	67	49	73
10145	♀	66	48	76
10148	♀	65	45	77
10149	♀	67	47	79
10153	♀	69	50	76
10154	♀	63	50	73
10155	♀	67	50	77
10156	♀	64	52	74
10157	♀	65	50	76
10158	♀	66	47	70
10159	♀	65	48	75
10160	♀	66	49	78
10161	♀	64	47	72
10162	♀	69	49	75
10163	♀	65	45	73
10165	♀	64	51	74
10167	♀	63	50	72
10168	♀	66	47	72
10180	♀	66	49	74
10181	♀	65	50	76
10198	♀	66	46	77
10199	♀	70	46	78
10200	♀	67	52	76
10201	♀	68	48	74
10202	♀	64	48	75
10203	♀	71	52	75
10204	♀	68	48	74
10205	♀	64	44	74
10206	♀	64	45	72
10207	♀	67	48	71
10208	♀	70	51	80
10209	♀	68	49	75
10210	♀	71	46	76
10211	♀	64	44	75
12023	♀	67	49	77
12024	♀	69	50	80
12027	♀	64	..	78
12030	♀	70	47	70
12047	♀	62	46	72
12048	♀	65	51	74
12049	♀	70	47	77
12050	♀	62	48	74

Habits.—Barrington Island, Oct. 20, 1905. Went ashore on the N.E. coast, and traveled about a mile to the iguana colony. *Tropiduri* were common near the beach, but plentiful inland. July 9, 1906. *Tropiduri* seem to be less abundant now than at the time of our former visit. July 10. Lizards are fairly abundant and rather wild.

"All stomachs examined contained insects, chiefly Orthoptera." (Heller.)

Tropidurus albemarlensis Baur

Galapagos Lizard

? 1851, *Holotropis grayi,* Duméril, Cat. Méth, Rept., 1851, p. 70 (part); Duméril, Arch. d' Mus., VIII, p. 538 (part).

1871, *Craniopeltis grayii,* Peters, Mon. Berlin. Acad., 1871, p. 645 (part).

1876, *Tropidurus (Craniopeltis) grayii,* Steindachner, Festschr. Zool.-Bot. Ges. Wien, 1876, p. 310, pl. II, fig. 1 (part).

1877, *Liocephalus grayi,* Günther, Proc. Zool. Soc. Lond., 1877, p. 67 (part).

1885, *Tropidurus grayi,* Boulenger, Cat. Lizards, II, 1885, p. 172 (part); Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 145 (part); Boulenger, Ann. and Mag. Nat. Hist., (6), VII, 1891, p. 502 (part).

1890, *Tropidurus albemarlensis,* Baur, Biol. Centralbl., X, p. 478; Baur, Festschrift für Leuckart, 1892, pp. 265, 269 (type locality, **Tagus Cove, Albemarle Island, Galapagos Archipelago).**

1890, *Tropidurus indefatigabilis,* Baur, Biol. Centralbl., X, p. 478; Baur, Festschrift für Leuckart, 1892, pp. 265, 268 (type locality, **Indefatigable Island, Galapagos Archipelago).**

1892, *Tropidurus jacobii,* Baur, Festschrift für Leuckart 1892, p. 269 (type locality **James Island, Galapagos Archipelago).**

1903, *Tropidurus grayi grayi,* Heller, Proc. Washington Acad. Sci., V, 1903, p. 69 (part).

1903, *Tropidurus grayi magnus,* Heller, Proc. Washington Acad. Sci., V, 1903, p. 74 (type locality **Narborough Island, Galapagos Archipelago).**

Diagnosis.—Sides of neck granular, with numerous folds; hind legs of males without definite dark spots; interparietal plate usually much broader than long; not more than 76 scales around middle of body; scales larger than in *T. albemarlensis barringtonensis,* 50 to 69 around middle of body.

Types.—Dr. Baur described *T. albemarlensis* from eleven specimens collected by the naturalists of the "Albatross" at **Tagus Cove, Albemarle Island,** in April, 1888. These lizards are Nos. 15003 to 15013 of the U. S. National Museum collection. *T. indefatigabilis* was described from ten examples from Indefatigable Island. *T. jacobii* was based upon a considerable number of specimens from James and Jervis islands. The type of Heller's *T. grayi magnus* was collected on Nar-

borough Island, and is No. 3974 in the collection of Leland Stanford Junior University.

Distribution.—This lizard has been collected on Indefatigable, South Seymour, Daphne, James, Jervis, Cowley, Brattle, Albemarle, and Narborough islands, Galapagos Archipelago. On Albemarle Island it has been found at Bank's Bay, Tagus Cove, Cowley Mountain, Iguana Cove, and the southeast coast near Vilamil or Turtle Cove.

Material.—The Academy's collection contains specimens about as follows:

Indefatigable Island,	72;	scales	counted	in	24	males,	42	females.
S. Seymour "	47;	"	"	"	12	"	31	"
Daphne "	52;	"	"	"	27	"	24	"
James "	239;	"	"	"	59	"	96	"
Jervis "	22;	"	"	"	6	"	16	"
Cowley "	1;	"	"	"	1	"	0	"
Brattle "	43;	"	"	"	21	"	16	"
Albemarle Island at:								
Banks Bay	50;	"	"	"	12	"	34	"
Tagus Cove	45;	"	"	"	18	"	26	"
Cowley Mt.	1;	"	"	"	1	"	0	"
Iguana Cove	4;	"	"	"	2	"	2	"
Vilamil	217;	"	"	"	61	"	60	"
Narborough Island	101;	"	"	"	41	"	51	"

Description of adult male No. 12287, Tagus Cove, Albemarle Island.—The head is covered above with smooth scales; interparietal largest, broader than long; five or six large superoculars; superciliaries imbricate; five superior and five inferior labials, to below middle of the eye; rostral very broad and low; symphyseal broad, followed by a series of large sublabials, of which all but the first are separated from the infralabials by a row of smaller plates. Ear-opening large, with an anterior denticulation of four or five long, narrow scales. Sides of neck between ear-opening and fore limb with numerous granular folds. A strong antehumeral, but no complete gular, fold. A well-developed median dorsal crest begins half the length of the interparietal behind this plate, and runs continuously to and along the tail, being highest on the proximal fourth of the tail. The dorsal regions of the neck, body, and tail are covered with rather small, keeled, mucronate scales, which, on the body, change gradually to smaller, keeled, mucronate laterals. These again change gradually into the smooth ventrals, which are much smaller than the dorsals. The gular scales are smooth, smaller centrally, smallest below the ears. The scales of the chest are largest, smooth and imbricate. The limbs are provided above with keeled, and below with smooth, scales. The posterior surface of the thigh is covered with imbricate scales, which, toward the dorsal surface of the thigh, become keeled. The lateral caudals are strongly keeled and mucronate; while the inferior caudals are smooth proximally, but become keeled on the distal portion of the tail.

The coloration in alcohol is olive brown above, spotted, except on the head, tail, and hind limbs, with small rounded, blackish spots, each covering one or more scales. The chin is yellowish. The throat is black. The other lower surfaces are greenish or yellowish, marked on the chin, gular region, chest, and sides of body with discrete, rounded spots of black or dark brown.

Length to anus ..... mm.	85
Length of tail	116+
Snout to ear	18
Width of head	22.5
Fore limb	35
Hind limb	59
Base of fifth to end of fourth toe	23
Height of crest on nape	2
Height of crest on midbody	2.2
Height of crest on tail	3

Coloration in life of adult female, Tagus Cove.—"Above brown, spotted with lighter brown except on tail, which is grayish brown. Hind limbs like the tail, fore limbs colored like the back. Belly light grayish, hind limbs and tail inferiorly the same. Breast pale yellow spotted with black; throat dark, with yellow-edged scales; chin lighter, grayish, dusky spotted; infralabials and mental pinkish. Sides dull brick red, black-spotted; a dark stripe from the ear to the thigh, and another fainter one from the axilla to the thigh. Sides of head and neck brighter red, with a dark antehumeral spot."

Coloration in life of adult male, Iguana Cove.—"Above olive brown, flecked with pale greenish gray, dorsal crest like spots except on the nape, where it is dark-spotted; limbs above like the back. Head uniform brownish, sides of body the same, but dark-spotted. Sides of neck tinged with reddish; a black antehumeral spot. Belly pale greenish gray, bordered with brick red on the sides; limbs and tail inferiorly like the belly. Breast chrome yellow spotted with black, the throat clay-yellow, much spotted with black, mandible grayish, labials greenish."

"The males secured in Iguana Cove show much variation. Those inhabiting the light soil in brushy areas are lighter; in some, the breast being yellowish with a few scattered spots, and the throat grayish. Others taken near the beach, on black basaltic lavas, have the breast, throat, and mandible solid blackish, and the belly plumbeous. Some of the light specimens are considerably lighter above than the one described, the dorsal crest being entirely light grayish, and sides of the belly dark-spotted, with the dark markings of the back arranged in transverse bars."

Coloration in life of adult female, Iguana Cove.—"Much darker brown above than the male, with light dorsal crest,

black-spotted above; tail somewhat lighter, with a greenish dorsal crest and light spots; fore limbs like the back; hind limbs like the tail, light-spotted. Belly pale greenish gray, breast golden, black-spotted; throat and mandible brick red. Tail and hind limbs inferiorly like the belly; fore limbs like the breast, black-spotted. Sides of throat, mandible, and body brick red; a black antehumeral spot."

Coloration in life of three adult males, James Island.—1) "Above dark brown, spotted with blackish and light grayish spots; dorsal crest and the scales at its base light grayish; hind limbs and tail above lighter dusky brown, the former light-spotted; head above olive brown. Belly, thighs, and tail inferiorly light grayish; breast buffy and pinkish, sparingly black-spotted; throat black, mandible pinkish, black-spotted posteriorly. Sides of head light brownish, preoculars light-spotted, lower eyelid bluish; sides of neck bright red, black-spotted; a black antehumeral spot, light-bordered anteriorly; shoulders blotched with yellowish and brown. Sides of the body lake red, spotted with black and whitish spots except about the axilla and along the sides of the belly."

2) "The back is brownish, with black spots which extend down to the light bluish coloration below. Dorsal crest very prominent, of a light greenish tint. Sides of neck reddish, with black spots. Black blotches in front of each shoulder. Chin and lower jaw pale red. Gular region black. Chest with faint black spots. Below light blue."

3) "Back brown with scattered black spots. Upper surface of fore limbs also with black spots. Folds on neck red with large black spots. Antehumeral spot black, larger than in females. Chin light straw color with a few small black spots. Gular region black. Chest brick red with small black spots. Belly and lower surfaces of hind limbs and tail dull light blue."

Coloration in life of three adult females, James Island.—1) "Above golden-brown, crest grayish-white, nape and tail lighter without golden coloration; limbs above like dorsum. A dark brown band, two scales wide, extending from the ear

to above the thigh; a lighter or fainter one from the axilla to the thigh. Belly, hind limbs, and tail inferiorly light grayish; breast, throat, and mandible canary yellow, black-spotted. Sides of head orange red; sides of neck and body red, brightest anteriorly, lake red posteriorly, on body the scales light-edged, sparingly dark-spotted; a black antehumeral spot."

2) "Back brownish. Sides of neck reddish with black blotch in front of shoulder. Gular region lemon color with black spots. Lower surfaces pale blue."

3) "Back light bronze. A row of small black spots runs along the side, starting behind the fore limb and ending a little in front of the hind limb. The folds on the side of the neck are brick red. There is a black antehumeral spot. Throat and chest bright lemon color with black spots. Belly and lower surfaces of hind limbs and tail dull light bluish."

Variation.—Although the lizards which are here included under one name have been described as several distinct species, we have not been able to find any differences which are constant enough to justify us in making any division. The scale counts agree quite closely in specimens from all these islands. Females from South Seymour and Indefatigable islands show most red suffusion about the chin and throat, but red is shown also by specimens from Daphne, James, Jervis, and Albemarle islands. Jervis and Seymour specimens of both sexes may show red. Specimens from Indefatigable Island vary but little. The black dorsal spots may be present or absent on females, but are constant on males.. Gular folds and under surface of shoulders in both sexes may show a faint coloring of red. Interoccipital wider than long.

South Seymour Island. Females may have indistinct dorsal markings, otherwise there is little variation. The gular folds and sides of the belly back of the shoulders are distinctly marked with red, those without it being the exception. The males have all the under surface of shoulders and chin distinctly marked with red spotted with black. Throats of females are white, spotted with black. Interoccipital wider than long.

Daphne Island. Black cross-bars over the shoulders and black spots on the front limbs are present in males, but always absent in females. Throats of males are always black, while those of females are white, spotted with black. Some specimens may have a slight showing of red on the gular folds. This rarely occurs, but may be seen in either sex. Interoccipital wider than long.

James Island. Females lack the black throat which is constantly present in the males. They may be sparingly spotted with black, but usually are uniform brown. Throats may be white or grayish, spotted with black. Gular folds may have a slight showing of red, but this occurs more often in the females. Interoccipital wider than long.

Jervis Island. Females with or without indistinct dorsal spots. Adult males show red on sides of the belly just back of the shoulders. Interoccipital wider than long.

Brattle Island. Specimens show little variation. The throats of females are, as usual, white or grayish, spotted with black. The black dorsal spots are present in some females, but not as prominent as in the males. Interoccipital wider than long.

Bank's Bay, Albemarle Island. Females may show indistinct dorsal spotting, which is constant in the males. Throats may be red or slate color, spotted with black. Some female specimens have the gular folds and sides of the belly reddish spotted with black. Some few males have red coloring like the females, but not so bright. Interoccipital wider than long.

Tagus Cove, Albemarle Island. Females may have throats white or grayish, spotted with black, and some specimens are faintly red on gular folds. They may have faint dorsal markings similar to the prominent ones of the males. Interoccipital wider than long.

Vilamil, Albemarle Island. Females differ little in coloration, but a few may have red on the gular folds and a trace on top of the head. The throats are white or grayish, spotted with black. A black blotch in front of the shoulders is common in both sexes. The black dorsal spots are constant in males, but rare and indistinct in females. Interoccipital usually wider than long.

Narborough Island. Throats of females may be either slate color or blackish like the under surfaces of the body, with or without black spots. Those of males are usually black, but may be slate color with large black spots. The black dorsal spots are present in both sexes, but indistinct in the females. Some females may have a very faint showing of red along the sides of the belly. Interoccipital wider than long.

TABLE OF SCALE COUNTS—INDEFATIGABLE ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10228	♂	53	40	67	10236	♀	56	42	67
10229	♂	56	44	67	10374	♀	52	..	69
10373	♂	55	47	66	10382	♀	55	45	68
10376	♂	55	44	59	10384	♀	56	43	60
10377	♂	55	41	67	10389	♀	57	48	65
10385	♂	53	42	61	10390	♀	57	43	68
10386	♂	53	42	63	10392	♀	56	44	63
10391	♂	54	47	65	10397	♀	57	40	60
10394	♂	56	38	65	10400	♀	56	41	68
10398	♂	53	43	64	10401	♀	54	43	64
10399	♂	57	43	68	10402	♀	55	42	63
10403	♂	57	44	66	10404	♀	57	42	67
10407	♂	56	43	65	10405	♀	56	41	68
10410	♂	56	42	67	10406	♀	55	40	62
10419	♂	56	44	67	10408	♀	57	..	68
10424	♂	56	40	68	10409	♀	55	40	66
10546	♂	54	41	66	10411	♀	54	47	68
10549	♂	55	43	63	10412	♀	53	44	60
10550	♂	54	47	63	10413	♀	53	40	64
10551	♂	54	40	67	10414	♀	55	41	66
10552	♂	53	42	61	10415	♀	52	41	62
10793	♂	54	44	63	10416	♀	57	43	67
12066	♂	53	46	60	10417	♀	57	43	67
12067	♂	54	40	69	10418	♀	57	41	66
					10420	♀	53	40	63
					10421	♀	57	43	64
					10422	♀	54	42	66
					10423	♀	53	42	63
					10425	♀	57	..	65
					10426	♀	52	40	62
					10427	♀	54	..	64
					10547	♀	53	43	64
					10548	♀	56	42	69
					10553	♀	50	40	62
					10554	♀	54	41	66
					10555	♀	55	41	63
					10556	♀	56	44	69
					10557	♀	54	44	63
					10558	♀	55	43	64
					10794	♀	57	40	65
					12068	♀	55	..	68
					12069	♀	55	40	64

TABLE OF SCALE COUNTS—South Seymour Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10434	♂	56	44	69	10430	♀	56	45	66
10435	♂	56	46	68	10431	♀	57	44	67
10439	♂	59	41	68	10432	♀	52	46	66
10440	♂	54	38	68	10436	♀	55	43	66
10445	♂	56	45	73	10438	♀	55	..	68
10456	♂	54	39	68	10441	♀	57	44	69
10457	♂	60	42	71	10443	♀	54	44	66
10458	♂	52	41	66	10444	♀	57	46	72
10480	♂	52	39	68	10446	♀	54	43	66
10481	♂	59	43	69	10447	♀	55	45	66
12080	♂	55	44	67	10448	♀	57	42	65
12081	♂	54	43	68	10449	♀	57	40	69
					10450	♀	54	41	66
					10451	♀	55	44	65
					10452	♀	60	46	..
					10453	♀	60	40	71
					10454	♀	57	..	69
					10455	♀	58	44	68
					10459	♀	55	44	69
					10460	♀	58	40	70
					10461	♀	56	45	67
					10462	♀	56	45	66
					10463	♀	57	44	70
					10464	♀	60	42	66
					10465	♀	55	44	66
					10466	♀	58	41	70
					10467	♀	58	42	67
					10468	♀	58	45	67
					10469	♀	56	..	65
					10470	♀	59	44	65
					10471	♀	55	45	67

TABLE OF SCALE COUNTS—Daphne Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10487	♂	61	47	72	10492	♀	60	49	70
10488	♂	59	44	72	10493	♀	60	45	71
10489	♂	61	43	72	10494	♀	63	44	72
10490	♂	59	49	71	10498	♀	65	44	71
10491	♂	62	49	72	10499	♀	64	47	71
10496	♂	65	46	72	10501	♀	65	43	71
10497	♂	58	48	72	10502	♀	63	48	71
10500	♂	62	47	72	10504	♀	62	51	72
10503	♂	61	48	70	10506	♀	63	48	70
10505	♂	62	44	72	10507	♀	65	47	71
10509	♂	64	45	73	10508	♀	55	45	66
10510	♂	62	48	70	10512	♀	61	47	72
10511	♂	58	47	71	10515	♀	66	46	72
10513	♂	60	46	70	10516	♀	61	50	75
10514	♂	63	47	71	10517	♀	63	45	70
10518	♂	63	47	74	10521	♀	63	44	70
10519	♂	65	49	71	10524	♀	66	50	72
10520	♂	61	44	73	10526	♀	62	44	..

TABLE OF SCALE COUNTS—DAPHNE ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10522	♂	61	48	74	10528	♀	61	49	70
10523	♂	61	46	72	10531	♀	60	43	68
10525	♂	62	44	70	10534	♀	65	49	73
10527	♂	62	..	73	10536	♀	66	46	72
10529	♂	58	45	68	10537	♀	65	48	72
10530	♂	60	47	72	10538	♀	60	49	72
10532	♂	62	45	69					
10533	♂	59	47	68					
10535	♂	60	..	71					

TABLE OF SCALE COUNTS—JAMES ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10587	♂	58	39	75	10593	♀	63	43	74
10588	♂	67	43	74	10595	♀	63	42	72
10591	♂	63	40	74	10596	♀	60	43	72
10592	♂	64	..	73	10597	♀	60	41	72
10594	♂	54	40	68	10599	♀	64	43	74
10602	♂	63	42	72	10604	♀	63	42	74
10618	♂	60	41	73	10619	♀	58	41	72
10624	♂	60	40	68	10620	♀	61	43	72
10631	♂	60	46	70	10621	♀	55	..	70
10635	♂	58	42	70	10622	♀	60	44	74
10652	♂	61	43	68	10623	♀	59	42	70
10653	♂	59	42	66	10625	♀	62	37	68
10655	♂	62	38	70	10627	♀	61	42	69
10656	♂	59	45	66	10628	♀	61	40	74
10657	♂	58	38	70	10629	♀	59	42	69
10658	♂	62	41	77	10630	♀	59	43	68
10661	♂	56	40	73	10632	♀	61	44	68
10662	♂	62	43	70	10633	♀	62	40	71
10666	♂	63	42	68	10634	♀	58	..	74
10667	♂	57	44	76	10636	♀	60	44	73
10669	♂	60	39	73	10637	♀	57	44	71
10670	♂	63	42	69	10638	♀	58	38	68
10672	♂	60	44	74	10639	♀	56	42	66
10673	♂	58	42	71	10640	♀	62	44	75
10674	♂	60	43	69	10641	♀	52	..	69
10676	♂	64	46	79	10642	♀	62	44	72
10678	♂	61	42	70	10643	♀	59	42	73
10681	♂	58	40	70	10644	♀	59	44	73
10682	♂	57	47	73	10646	♀	63	42	72
10683	♂	58	42	71	10647	♀	61	44	71
10684	♂	60	40	69	10648	♀	57	42	68
10691	♂	63	39	73	10649	♀	59	43	72
10694	♂	62	43	77	10650	♀	63	41	73
10695	♂	59	39	69	10654	♀	61	39	73
10698	♂	60	42	71	10659	♀	59	43	71
10700	♂	64	43	72	10660	♀	60	43	68
10706	♂	58	45	74	10663	♀	58	41	72
10707	♂	64	42	71	10664	♀	57	40	68
10708	♂	60	42	69	10665	♀	56	44	68
10713	♂	60	42	70	10668	♀	63	43	74

TABLE OF SCALE COUNTS—James Island—*Continued*

Number	Sex	Scale Rows	Crest	Belly
10720	♂	59	38	71
10723	♂	58	40	70
10735	♂	64	42	70
10737	♂	60	44	75
10739	♂	61	40	71
10740	♂	60	37	72
10741	♂	61	43	67
10742	♂	58	43	71
10743	♂	64	44	68
10747	♂	60	42	70
10748	♂	59	44	70
12101	♂	62	40	71
12103	♂	61	..	68
12107	♂	57	35	71
12108	♂	60	40	72
12109	♂	57	41	70
12125	♂	56	41	68
12132	♂	61	45	74
12133	♂	58	46	74

Number	Sex	Scale Rows	Crest	Belly
10675	♀	58	42	70
10677	♀	62	42	70
10679	♀	63	43	70
10680	♀	64	43	70
10685	♀	59	40	67
10686	♀	62	37	75
10687	♀	58	..	72
10688	♀	64	40	68
10689	♀	56	44	72
10690	♀	60	43	70
10692	♀	57	42	70
10693	♀	64	44	73
10696	♀	60	42	74
10697	♀	61	42	72
10699	♀	60	40	73
10701	♀	61	41	72
10702	♀	61	42	71
10705	♀	60	40	72
10709	♀	60	40	74
10711	♀	61	46	69
10712	♀	63	44	75
10714	♀	63	41	75
10715	♀	57	41	67
10716	♀	59	44	69
10717	♀	61	40	71
10718	♀	61	38	70
10751	♀	62	43	70
10755	♀	62	43	67
10757	♀	60	43	70
10760	♀	61	42	73
10761	♀	61	43	72
10762	♀	61	43	70
10764	♀	58	42	69
10768	♀	56	44	68
10769	♀	62	41	74
10772	♀	62	40	72
10773	♀	60	44	70
10778	♀	56	39	65
12099	♀	62	41	76
12100	♀	62	41	77
12102	♀	64	42	77
12104	♀	57	44	73
12105	♀	60	41	69
12106	♀	61	37	73
12110	♀	63	42	74
12111	♀	61	43	77
12112	♀	59	41	73
12113	♀	58	35	74
12114	♀	61	41	73
12115	♀	60	39	71
12124	♀	60	42	69
12126	♀	63	43	71
12127	♀	61	41	72
12129	♀	59	40	68
12130	♀	61	41	72
12131	♀	60	43	71

TABLE OF SCALE COUNTS—JERVIS ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10574	♂	65	43	71	10569	♀	63	43	71
10575	♂	64	41	72	10570	♀	60	46	71
10577	♂	62	40	70	10571	♀	60	38	72
10578	♂	68	40	76	10572	♀	60	39	70
10607	♂	64	48	77	10573	♀	65	43	74
10608	♂	61	43	71	10576	♀	61	42	71
					10579	♀	61	43	70
					10580	♀	62	45	69
					10581	♀	60	42	70
					10582	♀	62	43	70
					10583	♀	59	42	64
					10584	♀	69	40	76
					10585	♀	60	43	70
					10586	♀	61	39	69
					10606	♀	63	42	75
					10609	♀	65	40	75

TABLE OF SCALE COUNTS—BRATTLE ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10238	♂	61	43	66	10237	♀	60	40	67
10239	♂	64	40	66	10242	♀	61	40	67
10240	♂	62	41	67	10245	♀	61	42	69
10241	♂	64	41	67	10249	♀	61	38	64
10243	♂	64	42	65	10252	♀	60	40	68
10246	♂	63	41	69	10253	♀	60	40	64
10247	♂	61	40	65	10254	♀	62	41	67
10248	♂	61	39	66	10258	♀	62	42	64
10250	♂	67	40	67	10262	♀	61	40	68
10251	♂	61	40	63	10263	♀	62	39	68
10255	♂	63	38	67	10267	♀	61	45	68
10257	♂	66	44	69	10270	♀	67	38	69
10259	♂	62	39	67	10274	♀	65	43	69
10260	♂	61	37	66	10276	♀	59	39	66
10261	♂	63	40	65	10277	♀	65	40	68
10264	♂	62	42	67	10278	♀	61	..	63
10266	♂	61	40	66					
10268	♂	63	40	66					
10269	♂	62	40	64					
10272	♂	63	41	65					
10275	♂	65	42	65					

TABLE OF SCALE COUNTS—COWLEY ISLAND

Number	Sex	Scale Rows	Crest	Belly
12167	♂	61	42	67

TABLE OF SCALE COUNTS—Bank's Bay, Albemarle Island

Number	Sex	Scale Rows	Crest	Belly
11356	♂	58	35	60
11358	♂	59	37	62
11385	♂	58	42	63
11388	♂	57	39	66
11389	♂	63	39	63
11390	♂	62	36	64
11391	♂	59	39	60
11396	♂	63	39	63
11397	♂	58	40	62
11400	♂	60	43	68
11401	♂	59	40	63
11429	♂	60	40	66
11355	♀	58	37	64
11357	♀	58	41	61
11360	♀	62	38	68
11361	♀	60	40	63
11362	♀	61	43	68
11363	♀	56	38	64
11364	♀	58	36	61
11365	♀	62	39	67
11384	♀	55	41	61
11386	♀	59	39	63
11387	♀	59	38	60
11392	♀	61	39	55
11395	♀	57	40	66
11398	♀	61	43	64
11402	♀	63	43	65
11403	♀	57	37	61
11404	♀	58	39	64
11406	♀	58	37	63
11407	♀	64	40	67
11408	♀	59	36	67
11409	♀	64	43	67
11410	♀	61	38	60
11411	♀	57	40	65
11414	♀	64	39	66
11416	♀	59	39	66
11417	♀	58	45	68
11418	♀	60	38	68
11420	♀	63	39	65
11421	♀	57	41	62
11424	♀	61	42	62
11425	♀	58	39	65
11426	♀	62	37	61
11427	♀	60	36	65
11428	♀	58	40	66

TABLE OF SCALE COUNTS—Tagus Cove, Albemarle Island

Number	Sex	Scale Rows	Crest	Belly
11275	♂	59	35	63
11276	♂	58	36	65
11278	♂	60	33	65
11280	♂	57	34	63
11281	♂	62	41	65
11284	♂	60	38	62
11287	♂	58	40	63
11289	♂	59	38	68
11291	♂	60	38	65
11294	♂	60	39	58
11295	♂	60	35	60
11296	♂	61	36	66
11297	♂	60	40	65
11302	♂	58	34	61
11370	♂	58	37	59
11277	♀	59	36	63
11279	♀	60	39	64
11282	♀	58	38	63
11283	♀	57	41	60
11285	♀	58	42	64
11286	♀	61	39	65
11288	♀	60	36	60
11290	♀	58	35	62
11292	♀	56	36	63
11293	♀	58	37	62
11298	♀	57	40	64
11299	♀	57	43	62
11301	♀	56	42	65
11303	♀	55	38	61
11304	♀	60	43	62

TABLE OF SCALE COUNTS—TAGUS COVE, ALBEMARLE ISLAND—*Cont'd*

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
11372	♂	58	36	60	11369	♀	60	43	62
11381	♂	59	38	61	11371	♀	61	39	61
11383	♂	62	37	63	11373	♀	57	37	65
					11374	♀	56	37	61
					11375	♀	60	37	64
					11376	♀	57	39	65
					11377	♀	60	37	65
					11378	♀	58	36	60
					11379	♀	55	36	65
					11380	♀	54	39	63
					11382	♀	54	37	61

TABLE OF SCALE COUNTS—COWLEY MOUNTAIN, ALBEMARLE ISLAND

Number	Sex	Scale Rows	Crest	Belly
12157	♂	60	41	65

TABLE OF SCALE COUNTS—IGUANA COVE, ALBEMARLE ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
11249	♂	59	42	67	11251	♀	56	40	67
11250	♂	59	38	64	11261	♀	..	37	68

TABLE OF SCALE COUNTS—VILAMIL, ALBEMARLE ISLAND

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
10310	♂	58	42	65	10308	♀	57	41	68
10313	♂	61	40	68	10309	♀	56	38	65
10314	♂	57	38	64	10311	♀	56	41	62
10315	♂	60	37	65	10316	♀	56	38	66
10322	♂	57	36	63	10317	♀	55	39	62
10324	♂	56	37	62	10318	♀	60	37	68
10325	♂	56	37	66	10319	♀	58	42	65
10326	♂	62	42	69	10320	♀	61	45	66
10329	♂	58	36	65	10321	♀	59	43	64
10344	♂	58	36	65	10323	♀	58	37	63
11558	♂	60	39	69	10327	♀	60	37	61
11559	♂	60	44	67	10328	♀	58	40	65
11134	♂	58	40	69	10330	♀	57	40	67
11136	♂	56	40	60	10332	♀	56	43	63
11137	♂	57	41	68	10333	♀	56	37	63
11138	♂	61	32	70	10335	♀	56	44	64
11143	♂	64	39	66	10336	♀	59	38	60
11148	♂	57	39	64	10337	♀	62	37	64
11153	♂	61	39	70	11133	♀	64	41	..
11154	♂	60	41	65	11135	♀	61	40	66
11157	♂	61	39	67	11141	♀	62	44	64
11158	♂	60	36	67	11151	♀	56	39	68

TABLE OF SCALE COUNTS—Vilamil, Albemarle Island—*Continued*

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
11160	♂	62	42	69	11152	♀	56	38	67
11163	♂	59	41	71	11162	♀	59	39	63
11167	♂	62	35	63	11166	♀	61	39	62
11179	♂	60	43	68	11169	♀	58	38	66
11183	♂	57	39	69	11170	♀	62	43	69
11185	♂	59	39	66	11171	♀	60	40	68
11186	♂	62	36	69	11173	♀	64	38	67
11198	♂	61	36	60	11175	♀	59	43	69
11202	♂	60	40	64	11176	♀	53	39	63
11209	♂	58	32	57	11177	♀	63	..	69
11211	♂	59	36	65	11181	♀	63	42	66
11216	♂	59	42	68	11182	♀	60	41	63
11218	♂	57	36	66	11544	♀	60	39	67
11219	♂	57	34	60	11546	♀	57	40	66
11224	♂	55	37	65	11548	♀	55	42	65
11225	♂	60	40	64	11550	♀	58	40	64
11226	♂	59	39	65	11551	♀	57	39	60
11227	♂	59	40	66	11552	♀	57	40	70
11229	♂	62	37	67	11553	♀	59	36	66
11545	♂	62	42	67	11554	♀	60	42	69
11547	♂	57	43	70	11555	♀	59	39	63
11549	♂	64	38	64	11556	♀	57	39	60
11557	♂	62	39	66	11561	♀	56	38	67
11563	♂	57	41	65	11562	♀	56	40	64
11565	♂	62	41	71	11564	♀	57	41	64
11568	♂	56	40	68	11566	♀	60	38	68
11570	♂	59	42	66	11567	♀	61	43	64
11572	♂	57	36	64	11569	♀	59	37	67
11573	♂	60	40	67	11571	♀	58	40	62
11574	♂	59	37	67	11576	♀	57	40	67
11575	♂	57	39	63	11578	♀	64	40	62
11577	♂	57	40	62	11579	♀	63	41	62
11580	♂	56	41	63	11584	♀	55	39	64
11581	♂	56	41	66	11588	♀	55	41	63
11582	♂	58	42	62	11590	♀	60	38	63
11583	♂	55	40	62	11591	♀	56	39	67
11585	♂	56	39	61	11592	♀	60	40	71
11586	♂	63	36	66	11594	♀	58	41	68
11587	♂	60	..	65					

TABLE OF SCALE COUNTS—Narborough Island

Number	Sex	Scale Rows	Crest	Belly	Number	Sex	Scale Rows	Crest	Belly
11272	♂	58	38	69	11319	♀	60	40	63
11273	♂	61	38	67	11320	♀	58	37	65
11317	♂	54	42	67	11328	♀	55	37	63
11318	♂	56	41	71	11329	♀	..	35	68
11321	♂	55	37	64	11330	♀	62	39	..
11322	♂	61	40	70	11331	♀	58	35	66
11323	♂	58	38	72	11332	♀	61	37	65
11324	♂	55	38	66	11335	♀	54	41	67
11325	♂	54	41	68	11336	♀	59	42	64
11326	♂	56	39	65	11337	♀	57	40	65
11327	♂	60	43	76	11338	♀	59	38	67

TABLE OF SCALE COUNTS—NARBOROUGH ISLAND—*Continued*

Number	Sex	Scale Rows	Crest	Belly
11333	♂	54	38	68
11334	♂	58	38	66
11343	♂	57	37	67
11345	♂	64	39	65
11346	♂	61	38	70
11349	♂	60	37	69
11350	♂	55	35	62
11352	♂	55	36	64
11353	♂	53	35	65
11452	♂	58	39	63
11453	♂	59	37	66
11454	♂	56	37	63
11455	♂	59	37	65
11456	♂	55	31	60
11457	♂	54	35	62
11458	♂	62	35	67
11459	♂	58	36	62
11463	♂	59	42	67
11464	♂	58	39	69
11465	♂	58	38	68
11469	♂	54	36	67
11470	♂	61	40	71
11471	♂	57	42	62
11475	♂	..	..	63
11477	♂	57	41	65
11478	♂	58	39	68
11483	♂	58	36	67
11484	♂	55	32	60
11485	♂	55	39	65
11486	♂	59	39	70

Number	Sex	Scale Rows	Crest	Belly
11339	♀	57	36	63
11340	♀	55	38	61
11341	♀	58	42	67
11342	♀	60	42	64
11344	♀	56	39	67
11347	♀	54	36	61
11348	♀	55	40	67
11351	♀	58	41	72
11430	♀	55	36	62
11431	♀	55	36	61
11433	♀	57	37	63
11434	♀	55	39	64
11435	♀	58	35	62
11436	♀	60	37	66
11437	♀	59	37	68
11438	♀	57	39	65
11440	♀	60	35	64
11442	♀	55	40	63
11444	♀	56	34	67
11446	♀	55	36	61
11447	♀	59	36	64
11448	♀	55	36	62
11449	♀	54	38	63
11450	♀	57	37	66
11451	♀	55	38	63
11460	♀	58	37	68
11461	♀	55	40	69
11462	♀	60	39	66
31466	♀	62	39	71
11467	♀	55	37	66
11468	♀	55	40	66
11472	♀	58	35	65
11473	♀	54	38	67
11474	♀	56	35	61
11476	♀	60	39	61
11479	♀	59	35	65
11480	♀	60	40	66
11481	♀	55	39	63
11482	♀	55	36	62
11487	♀	58	36	62

Habits.—The eggs vary from four to six in number. They are white and elliptical with leathery shells. Females were seen on various islands, in May and June, digging short oblique burrows in the sand.

Stomachs of specimens from Indefatigable Island contained insects and spiders; those from the Seymours, insects, seed-cases, and berries; those from James contained spiders, insects and seeds. On Narborough they are said to feed on crustaceans near the shore, while farther inland insects and the seed capsules and ovaries of various flowers are eaten.

Dec. 27, 1905.—Went ashore at James Bay to collect lizards. Worked in the country back of the lagoon. I found the lizards common though the brush and on the lava blocks. Several were about six or seven feet up in the trees, probably looking for insects to eat, and some were feeding on the green leaves which are just sprouting. They were fairly tame, the females being more active than the males.

July 28, 1906.—Followed up a valley toward Bartholomew Island. Lizards are scarce inland, but common near the beach. The mate reports them abundant on Bartholomew Island.

Aug. 8, 1906, James Bay.—Found the lizards somewhat rarer than on our former visit. I examined the stomachs of two females and found that they contained small fragments of beetle wings. Hunter reports seeing lizards on the top of the mountain, but they are somewhat scarce there.

Nov. 23, 1905.—Sailed for Daphne Island in the morning. There are two islands: one a mere rock which it is impossible to land on, the other a crater of a volcano. We landed on the crater, and worked up to the top. I saw few lizards on the outer slope, but they were common on the bottom of the crater, which is a bed of white sand with a few scattered cactus plants. Many of the *Tropiduri* kept in the shelter of the cactus for protection from the hawks, which we saw sailing over the island. Others were caught under lava blocks whither they ran when frightened.

Narborough Island.—Lizards are common, but seem smaller than those on the south side of the island. They are more abundant near the coast. The females are wilder than the males. The dark bodies of the lizards show distinctly against the red lava.

August 22, 1906, Vilamil, Albemarle Island.—Went up with our outfit to the hacienda to start up the mountain. The weather at this elevation (1300 feet) is constantly rainy and foggy, and the prospect of camping is not very pleasant. There is nothing visible in the way of reptiles. *Tropiduri* do not seem to go much higher than 200 or 300 feet—the beginning of the green zone. The country seems very wet for them, just as Chatham Island does, and I did not see any as far up as the crater, although they occur in the crater itself.

The grassy area commences at about 1500 feet and extends to the rim of the crater at 3150 feet.

General remarks.—While the lizards of these islands are so similar that we have been able to find no characters which will serve to distinguish them, they nevertheless are not absolutely identical. The Indefatigable Island lizards have scales somewhat larger than those of the James Island specimens. A similar average difference probably exists between the lizards of Narborough and Albemarle. As may be seen when the counts of the scales about the body are plotted, the curves for the various islands do not coincide, although their bases overlap. It thus becomes evident that differentiation has begun on these islands also, although it still is too intangible to be recognized in momenclature.

Conolophus subcristatus (Gray)

Land Iguana

Trachycephalus subcristatus Gray, Cat., p. 188.
Amblyrhynchus subcristatus Gray, Zool. Misc., 1831, p. 6, and Zool. Beechy's Voyage, Rept., p. 93; Darwin, Journ. Beagle, p. 469.
Amblyrhynchus demarlii Dum & Bibr., IV, p. 197; Bell, Zool. Beagle, Rept., p. 22, pl. XII.
Hypsilophus (*Conolophus*) *demarlii* Fitzinger, Syst. Rept., 1843, p. 55.
Conolophus subcristatus Steindachner, Festschr. Zool.-Bot. Ges. Wien, 1876, p. 322, pls. IV-VII; Gunther, Proc. Zool. Soc., 1877, p. 67; Boul., Cat. Lizards, II, p. 187, 1885; Garman, Bull, Essex Inst., XXIV, 1892, p. 5 (part); Heller, Proc. Wash. Acad. Sci., V, 1903, p. 85.
Conolophus subcristatus pictus Roth & Hart, Novit, Zool., VI, 1899, p. 102.

Diagnosis.—Rostral once and a half times as broad as high; dorsal crest not so high as in *C. pallidus;* snout less pointed; coloration above, yellow on head, neck and fore limbs; red, brown, or olive on back, hind limbs, and tail.

Distribution.—The land iguana was formerly abundant on James, Indefatigable, South Seymour, Albemarle, and Narborough islands. It now is very rare on Albemarle, and probably extinct on James and Indefatigable.

Material.—A few bones were collected on James. Sixteen or eighteen specimens were secured on South Seymour, two at Tagus Cove, Albemarle, and twenty-one on Narborough.

There seem to be no constant differences between the specimens at hand from these islands. The Narborough iguanas have red backs, while the South Seymour ones usually have

this region dark olive; but a few from Seymour are colored like those from Narborough.

Variation.—The supralabials are 9 to 13 (Seymour 9–13, Narborough 9–13, Albemarle 11), the usual number being eleven. The femoral pores are 20 to 27 (Seymour 20–24, Narborough 20-27, Albemarle 21-22). The rostral is twice as broad as high in thirty-one per cent of the specimens from Seymour, seventy-five per cent of those from Narborough, and fifty per cent of those from Albemarle; being less than twice in all the other specimens. The large spines of the crest usually begin nearer the skull in Seymour specimens than in those from Narborough.

Field Notes.—South Seymour Island, Nov. 21, 1905.—Land iguanas are common, and are scattered all about, not living in colonies like those on Barrington Island. There are a few burrows, but most of the iguanas live in the broken lava. Some are red like the lava, and others are dark olive above. The under surfaces of body and legs are yellow, and the head is light yellow. The males here are very large. I saw one large male eating on a cactus, and our mate, Mr. Nelson, said that one came and drank the blood of a goat he had shot. July 26, 1906.—Found iguanas common, the males predominating. They have taken on a blackish color now, and are not so brilliant as on our former visit. Several stomachs examined were found to contain cactus and the leaves of a shrub *(Maytenus)* which resembles a scrub oak.

Indefatigable Island, Oct. 25, 1905.—Just back of the beach, on the side of the island near Barrington, we found the deserted burrows of what must at one time have been a large colony of land iguanas. The species seems now to be extinct on this island.

James Island, July 28, 1906.—No iguanas were seen, but I found some bones in a crack in the lava on the coast opposite Bartholomew Island.

Tagus Cove, Albemarle Island, March 23, 1906.—Beck reports seeing about six land iguanas, of which he secured one. They are extremely wild. He noticed one very large brightly colored male. The one taken was a female in the act of shedding its skin. March 24, 1906.—I saw only one iguana today. They are very rare; probably only six or eight are

left in the colony. Judging from the number of burrows one may safely say there were at one time as many as a thousand in this colony. The survivors keep well in the brush, and when once they start running do not stop until they get into a burrow. Mr. Beck found a few more iguanas at the end of a valley running along the foothills. April 7, 1906.—King and I secured an iguana near the foot of the mountain opposite Tagus Cove. He evidently was a stray one, as no other signs of them were seen so far to the north. They do not, however, any longer live in colonies. The one secured was a male. He allowed us to approach fairly near, but went fast when we chased him, and finally was caught in a hole in the lava. He was shedding his skin.

Bank's Bay, Albemarle Island, April 9, 1906.—Large numbers of deserted iguana burrows were seen all over the level country.

Narborough Island, April 6, 1906.—Land iguanas are common. They are brightly colored yellow and red. They live in cracks in the lava. No colonies of burrows were observed. April 17, 1906.—We made a landing on a slope of cinders and lava, over which we climbed to the top and reached a plateau with some vegetation and a little soil, the country being mostly broken lava of a reddish color. This plateau extended about two and a half miles to the base of the mountain. Here we found iguanas scattered over the lava. They were wild and had to be shot. All were of a uniform color, males and females, brick reddish body and tail, head bright yellow, and lower surfaces light-yellow. A few burrows were seen, but most of the iguanas here live in holes in the lava. The stomachs of those examined all contained *Scalesia,* a plant growing some two feet high, and scattered abundantly over the surrounding country. The females taken had no enlarged ovaries, and their breeding season is possibly over. Males and females were about equally common.

Conolophus pallidus Heller

Barrington Island Land Iguana

Conolophus subcristatus, Garman, Bull. Essex Inst., XXIV, 1892, p. 77 (part).

Conolophus pallidus, Heller, Pros. Wash. Acad. Sci., V, 1903, p. 87.

Diagnosis.—Rostral not less than twice as broad as high; dorsal crest higher than in *C. subcristatus;* snout more pointed; coloration above clay yellow.

Type.—Adult female, Stanford University No. 4749. Barrington Island, Galapagos Archipelago, May 1899.

Distribution.—Barrington Island.

Material.—The Academy collection includes twenty-five adult specimens in alcohol, and some skins and bones.

Variation.—The supralabials range from 9 to 11, the usual number being eleven. The femoral pores vary from 19 to 25, the most frequent numbers being 21 and 22. The rostral is not less than twice as broad as high in any specimen. The coloration is constantly of the light yellowish type.

Field Notes.—Oct. 20, 1905.—Anchored on N. E. coast of Barrington, and went ashore and a mile inland to the iguana colony on a plateau at an elevation of about three hundred feet. The ground is composed of soft red volcanic dust which is easily dug by the iguanas. The burrows resemble those of a ground-squirrel only larger. We found the iguanas common here. As a rule they were sitting at the mouths of their burrows, and would run in on near approach. They were awkward in their movements but covered ground at good speed. They lose their heads when chased by several persons, and don't make for their burrows, but run around and get caught in the brush, where they are easily captured by their tails. They are very vicious, seizing one another by the jaws and drawing blood. One we caught tore the whole lower jaw off another. They are bright buff to orange in coloration, the eyes being bright red with round black pupil.

Oct. 23, 1905. Found three or four females containing large eggs. The stomachs contained cactus, which grows abundantly all over the island.

Oct. 24, 1905. Found the males rare, not living in the colony, but outside in the lava piles. I think I have three males altogether.

July 9, 1906. We found that some of the natives had visited the island and cleaned out the entire iguana colony where we secured our specimens on our first visit. However, we saw a few iguanas scattered about.

July 10, 1906. King and I visited the valleys on the north coast. We saw numbers of iguanas scattered all about, but none in colonies. They are still plentiful on this island, despite the visits of the natives, who kill them for food.

We did not see any young specimens. Ten eggs were taken from one female and seven from another. They are large, with white, leathery shells. The ten measure 51×77, 53×77, 54×75, 54×77, 54×79, 54×79, 54×80, 54×82, 56×77, and 57×77 mm. Some of the other set measure 50×74, 51×75, 51×78, 52×78, and 53×73 mm.

Amblyrhynchus cristatus Bell

Sea Iguana

Amblyrhynchus cristatus Bell, Zoöl. Journ., II, 1825, p. 206, Supl., pl. XII, and Zoöl. Beagle Rept., p. 23; Dum & Bibr., IV, 1837, p. 195; Darwin, Jour. Beagle, p. 466; A. Dum., Cat. Meth., Rept., p. 62; Steindachner, Festschr., Zool-Bot. Ges. Wien, 1876, p. 316, pls. III, V, VI, VII; Günther, Proc. Zool. Soc., 1877, p. 67; Boulenger, Cat. Lizards, II, p. 185; Cope, Proc. U. S. Nat. Mus., XII, 1889, p. 147; Garman, Bull. Essex Inst., XXIV, 1892, p. 79 (part); Heller, Proc. Wash. Acad. Sci., V, 1903, p. 89.

Oreocephalus cristatus Gray, Cat., p. 189, 1845.

Iguana (*Amblyrhynchus*) *cristatus* Gray, Griff. A. K., IX, Syn., p. 37.

Iguana (*Amblyrhynchus*) *ater* Gray, Griff. A. K., IX, Syn., p. 37.

Amblyrhynchus ater Dum & Bibr., p. 196.

Hypsilophus (*Amblyrhynchus*) *cristatus* Fitzinger, Syst. Rept., 1843, p. 55.

Hypsilophus (*Amblyrhynchus*) *ater* Fitzinger, Syst. Rept., 1843, p. 55.

Amblyrhynchus cristatus var. *ater.* Garman, Bull. Essex Inst., XXIV, 1892, p. 8.

Amblyrhynchus cristatus var. *nanus* Garman, Bull. Essex Inst., XXIV, 1892, p. 80.

Distribution.—This species is restricted to the Galapagos Archipelago, where it has been collected at, or reported from, the following islands: Culpepper, Wenman, Abingdon, Bindloe, Tower, Chatham, Hood, Gardner-near-Hood, Charles, Champion, Enderby, Barrington, Indefatigable, South Seymour, Daphne, James, Jervis, Duncan, Brattle, Narborough, and on Albemarle at Bank's Bay, Tagus Cove, and Iguana Cove.

Material.—The present collection includes some one hundred and eighty specimens, from Culpepper, Wenman, Abingdon, Bindloe, Tower, Chatham, Hood, Champion, Indefatigable, James, Jervis, Brattle, Narborough islands, and Iguana and Tagus coves on Albemarle Island.

General remarks.—Careful comparison of the considerable number of specimens at hand has revealed no constant differ-

ences between those from the various islands. The sea iguanas of Tower and of Duncan islands have been given separate names by some authors, but we are unable to regard them as distinct. Even the iguanas of widely separated islands, such as Culpepper and Hood, seem not to differ upon direct comparison.

Variation.—The femoral pores vary from twenty to thirty-one. In all (7) specimens from Culpepper Island the mental separates the infralabials. This same conditions is found in three out of seven from Wenman Island, in twenty-seven out of forty-four from Hood Island, in twenty-three out of twenty-seven from Bindloe Island, in six out of eight from Albemarle Island, in all (6) from Indefatigable Island, in four out of five from Jervis Island, in twenty-nine out of thirty-eight from Abingdon Island, in five out of six from Brattle Island, in one from Champion Island, two from James Island, one from Chatham Island, and four from Narborough Island.

Field notes.—Hood Island, Feb. 5, 1906. The iguanas now are very brightly colored—green, red, and black. They are common on the coast, and are seen lying close to the water, their long claws enabling them to hang on to the rocks in spite of the strong wash of heavy surf which breaks over them. I saw none swimming or feeding today, in fact one seldom sees them in the water. They lie in the sun on the rocks, and never make for the water when pursued, but run along the rocks and get into crevices.

Gardner-near-Hood, Oct. 1, 1905. Found sea iguanas common on Gardner. At low tide, they feed on the green seaweed which covers the rocks, while at high tide they take to the higher places and lie in the sun.

Charles Island. No sea iguanas were seen by any of the party.

Chatham Island, Feb. 16, 1906. Sea iguanas are very rare on this island, where the natives formerly ate them and even their eggs. Ochsner reports seeing about three in the vicinity of Finger Point, and King secured one.

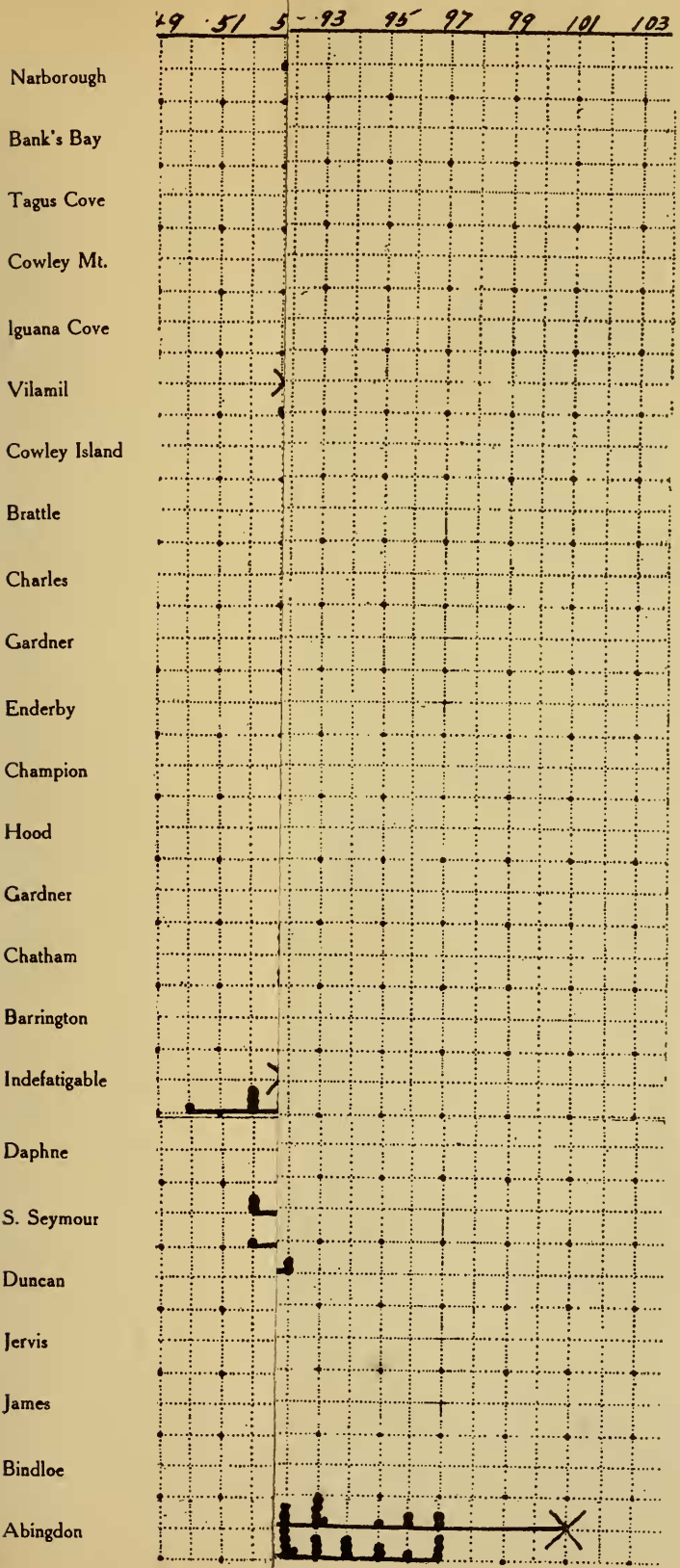
Barrington Island, Oct. 23, 1905. I saw only two sea iguanas, and tried to catch one but failed. The other was on a small rock a few hundred yards off the main island.

Tagus Cove, Albemarle Island, April 5, 1906. Sea iguanas are common on the rocks, and can be seen feeding on the seaweed at low tide. They eat with the sides of their mouths, much as a dog would chew a bone.

Bank's Bay, Albemarle Island, April 9, 1906. Sea iguanas were abundant along the rocks. I saw none brightly colored like those on Hood Island. None of the females had enlarged ovaries, so the breeding season probably is over. I saw a great many nests in the sand. These were little hollows about a foot in diameter and six inches deep, sloping to a point at the bottom. I could find no eggs. I saw iguanas here in the water more than at any other place. They swim like our water-dogs, (*Diemictylus*) with the legs carried close to the body, and propelling themselves by sinuous movements of the body and tail. The head and crest to the middle of the body can be seen above the water.

EXPLANATION OF PLATE VIII

Chart of the counts of scales around the middle of the body in *Tropidurus*. Each dot represents the count on one specimen. In the counts from each island, or locality, the males are represented on the upper line, the females on the lower line. The crosses represent the extreme counts given by previous authors.


49
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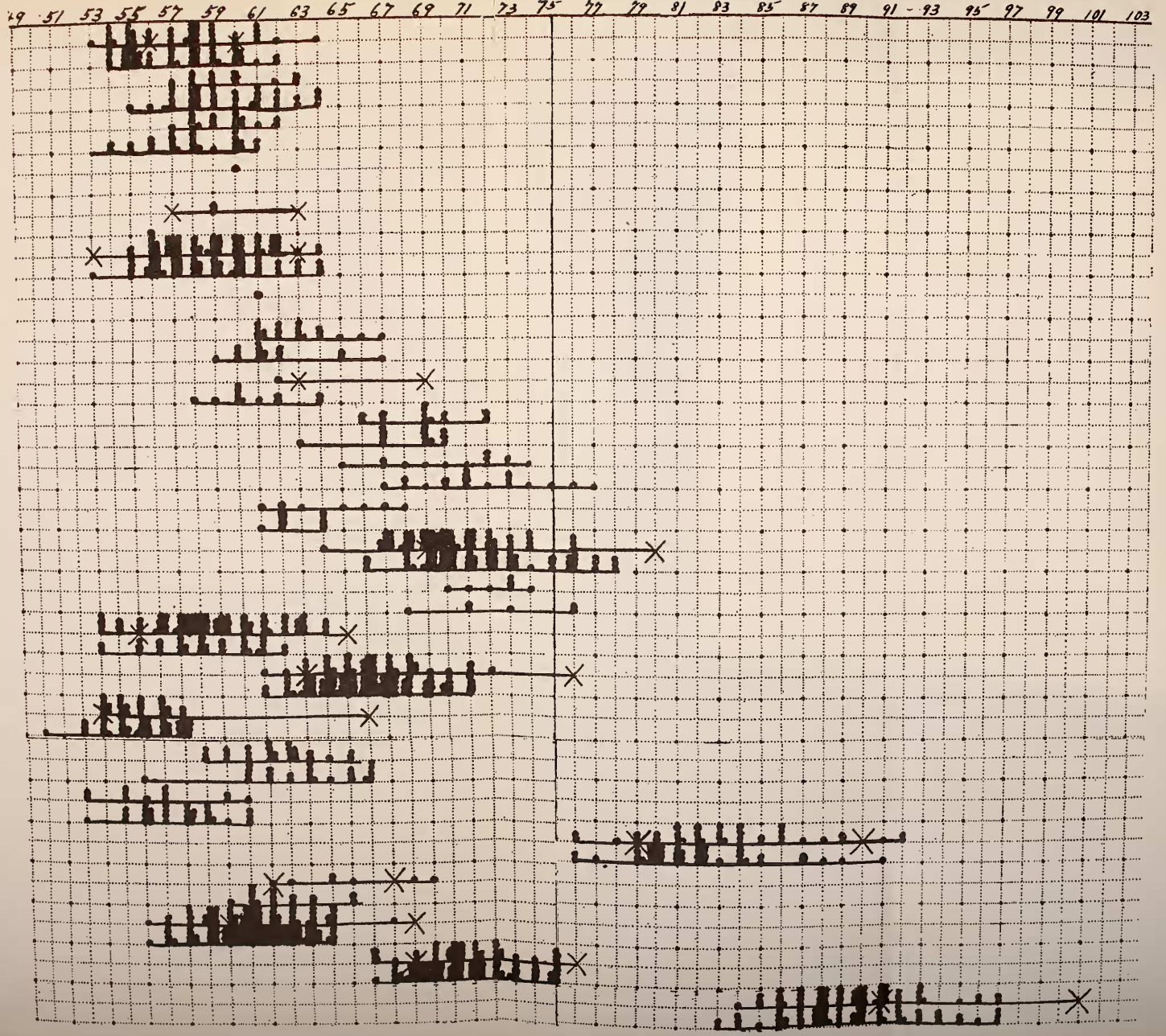
Narborough
Bank's Bay
Tagus Cove
Cowley Mt.
Iguana Cove
Vilamil
Cowley Island
Brattle
Charles
Gardner
Enderby
Champion
Hood
Gardner
Chatham
Barrington
Indefatigable
Daphne
S. Seymour
Duncan
Jervis
James
Bindloe
Abingdon


49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97 99 101 103
Narborough
Bank's Bay
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Cowley Mt.
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Cowley Island
Brattle
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Gardner
Enderby
Champion
Hood
Gardner
Chatham
Barrington
Indefatigable
Daphne
S. Seymour
Duncan
Jervis
James
Bindloe
Abingdon

EXPLANATION OF PLATE IX

Chart of the counts of scales in the crest in *Tropidurus*. Each dot represents the count on one specimen. In the counts from each island, or locality, the males are represented on the upper line, the females on the lower.